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ABSTRACT

In the 1996-1997 school year, the Chicago Public Schools (CPS), Illinois, began a national trend when it included a required summer program, Summer Bridge, as a central component of its efforts to end social promotion. More than 21,000 students in grades 3, 6, and 8, the promotional gate grades, have attended Summer Bridge each year, making it one of the largest and most sustained summer programs in the United States. A rigorous and careful evaluation as conducted of the Summer Bridge Program using a diverse data set that included the analysis of the achievement of all Summer Bridge participants, surveys and interviews of participating teachers and students, and in-depth classroom observations in 12 schools. Third and sixth graders received 90 hours of instruction each summer; eight graders attend 4 hours a day for 7 weeks for 140 hours. Students are taught by regular CPS teachers in small classes, usually at their own schools. CPS requires students who score below a given test score on the Iowa Test of Basic Skills to attend Summer Bridge. Among the important findings of the evaluation is that Summer Bridge has been effective in the short term in producing test score gains, especially for sixth and eight graders. The gains produced were relatively uniform across demographic and achievement groups. Students were extremely positive about their experiences in Summer Bridge. Whether teachers knew their students before Summer Bridge was an important predictor of test score increases and teacher practice. Higher achieving schools ran more effective Summer Bridge programs, and students whose teachers spent more time individualizing the curriculum and working with students outside of class had greater learning gains than those in other classrooms. Findings show that summer programs may be a useful intervention for students who are behind, but they are not a substitute effective instruction during the school year. The report includes commentaries by Geoffrey D. Borman, Jeffrey C. Valentine,

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Harris M. Cooper, John Poortz, and William H. Clune. Eleven appendices contain supplemental information. (Contains 59 figures, 53 endnotes, and 54 references.) (SLD)

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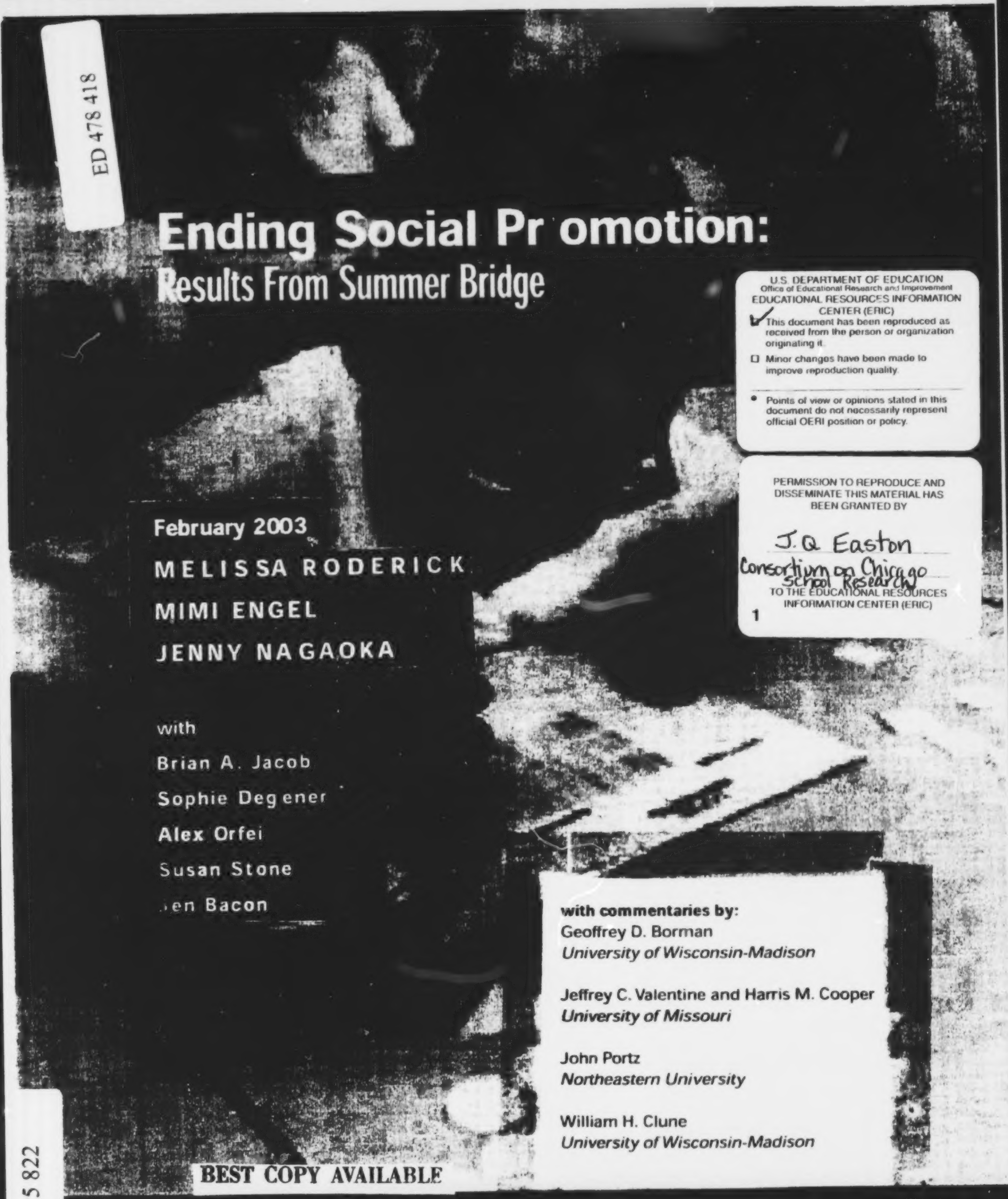

Ending Social Promotion:

Results From Summer Bridge

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CHARTING REFORM IN CHICAGO SERIES
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This report brings together four years of research on Summer Bridge and uses a diverse array of data including classroom observations, interviews with teachers and students, surveys, and student test scores. Many people have helped shape this work. We would like to acknowledge the research staff and field researchers who have contributed to this report, including James Chiong, Alice Kim, Sarah Brachle, Richard Meldrum, Jung Lee, Roxanne Alvarez, Stephanie Mitzenmacher, Siok-Hong Lim, Rose Perez, Kimberly Raue, Tracey Schneider, Eric Van Lente, Tanya Gutierrez, Robin Tepper Jacob, Ryan Tyler, Randall Simms, Michelle Henderson, and Amy Daigler. We would like to thank current and former staff at the Chicago Public Schools who provided technical advice and supported our field work in schools, including Blondean Davis and Bill McGowan. We are particularly indebted to the students, teachers, principals, and staff in the Chicago Public Schools who graciously welcomed our researchers into their buildings and classrooms.

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Ending Social Promotion:

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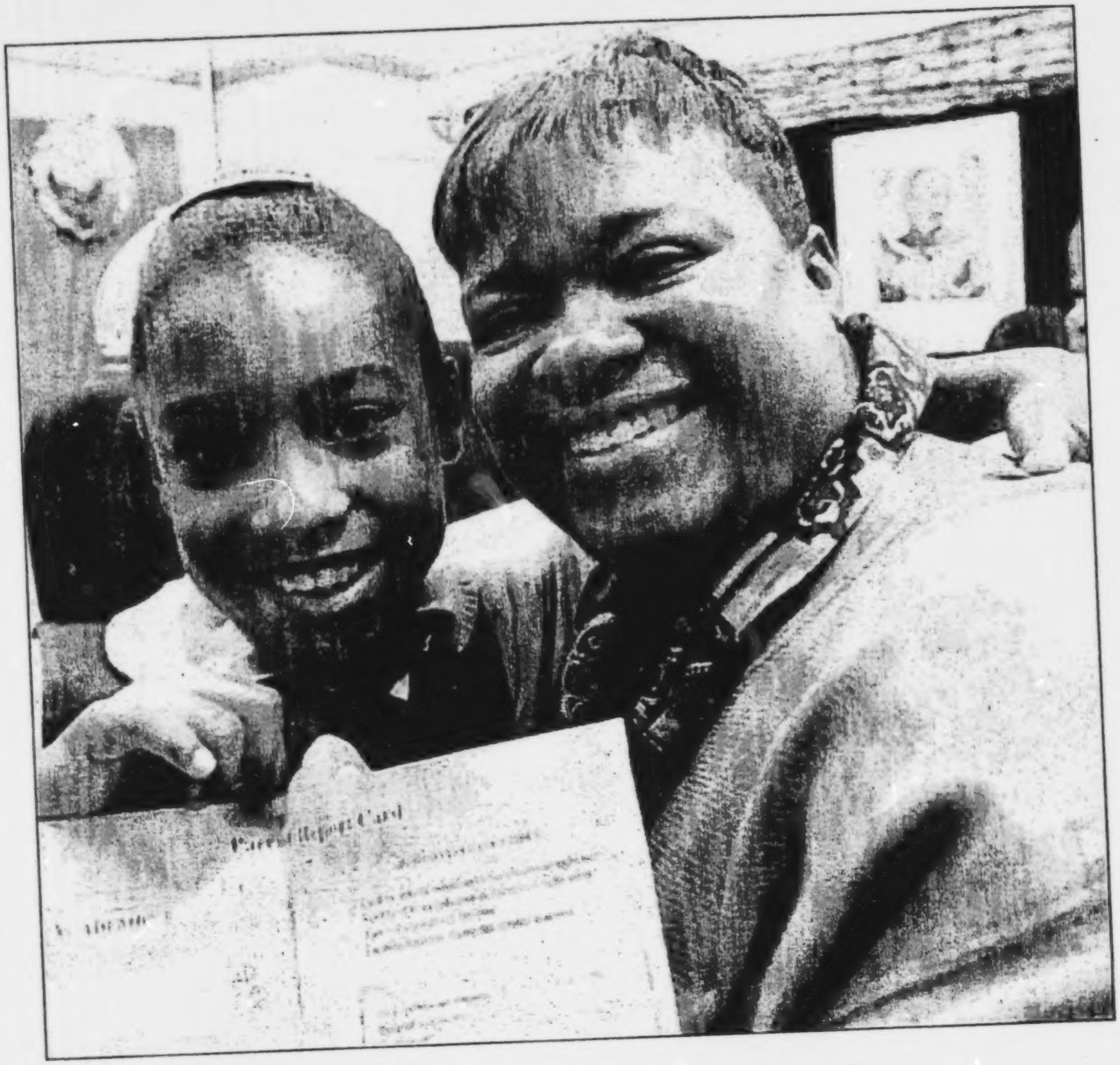
Parent Report Card

John Booz

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EXECUTIVE SUMMARY

In the 1996-97 school year, the Chicago Public Schools (CPS) began a national trend when it included a required summer program, Summer Bridge, as a central component of its efforts to end social promotion. Over 21,000 students in the third, sixth, and eighth, or promotional gate grades, have attended Summer Bridge each year, making it one of the largest and most sustained summer school programs in the country.

This report presents a rigorous and careful evaluation of Chicago's Summer Bridge program. It is designed to address the following central questions that arise in the use of summer programs to support low-achieving students under high-stakes testing:

- To what extent is Summer Bridge effective in increasing students' test scores and allowing more students to be promoted? And, how do the short-term effects of the program vary by whether students have very low skills or are closer to the test scores required for promotion?
- To what extent is there evidence that large-scale mandatory summer programs can produce uniform effects across students and schools?
- To what extent do summer programs like Summer Bridge provide positive learning environments for students?
- How did staffing characteristics, teachers' implementation of the curriculum, and classroom learning environments shape the program's impacts?
- Can a summer program provide help for low-achieving students that is sustained over time?

Over the last four years, a team of researchers at the Consortium on Chicago School Research has assembled a diverse data set to examine these questions. We analyzed the achievement of all students in Summer Bridge, surveyed and interviewed participating teachers and students about their experiences, and conducted in-depth classroom observations in 12 schools. This report brings together this qualitative and quantitative research to take a multifaceted look at Summer Bridge from its inception through the summer of 2000.

Overview of the Program

The goal of Summer Bridge is to give low-achieving students the extra help they need to remediate poor skills and meet test-score cutoffs for promotion. Third and sixth graders attend the program three hours per day for six weeks for a total of 90 hours of instruction. Eighth graders attend four hours per day for seven weeks for a total of 140 hours of instruction. Teachers are expected to teach a prescribed curriculum that is aligned with the Iowa Tests of Basic Skills (ITBS) and are provided all classroom materials. Students are taught by regular CPS teachers in small classes (approximately 16) and most often attend the program in their own school. Surveys conducted in 1999 indicate that eighth-grade Summer Bridge teachers were much more likely to have taught in the same grade during the previous school year. Reflecting this, over twice as many eighth-grade teachers than third-grade teachers (41 percent compared with 18 percent) reported knowing almost all (80 to 100 percent) of their Summer Bridge students before the program.

CPS requires students who score below a given test score on the ITBS to attend Summer Bridge. Over the course of this study, around one-third of students in the promotional grades did not meet these test-score cutoffs. Of these students, 97 percent were African-American or Latino. Testing rates indicate that participation in Summer Bridge was high. A conservative estimate indicates that over 80 percent of the students who were required to attend Summer Bridge were retested at the end of the program.

Critical Findings

- **Summer Bridge has been effective in the short run in producing test-score gains**, particularly among sixth and eighth graders, and in allowing more students to meet the test-score cutoffs for promotion. Our results suggest that summer programs may be a promising approach for providing students extra instructional time and remedial support. Sixth and eighth graders had substantial test-score gains. In all three grades, the rate at which Summer Bridge students increased their test scores was above their rate during the regular school year.

- We found little evidence to support one of the main concerns about the use of summer programs for students under high-stakes testing: namely, that such programs will only produce benefits for students who are close to the test-score cutoffs. However, one of the most positive findings in this report is that **Summer Bridge produced relatively uniform gains across demographic and achievement groups**. Third graders who were at the highest risk of failure benefited the most from the program.

- **Students were extremely positive about their experiences in Summer Bridge.** Sixth and eighth graders portrayed their summer classrooms as environments where they were expected to work hard. They also reported that their teachers were supportive. Most importantly, we found that students who attended Summer Bridge were significantly more positive in the summer than in the school year about the academic environments of their classrooms and the attention they received from teachers.

- **Whether teachers knew their students before Summer Bridge was an important predictor of test-score increases and teacher practice.**

Teachers who knew a large proportion of their Summer Bridge students beforehand were more likely to report adapting the curriculum to meet students' needs and working more closely with students outside of class time. These effects were most pronounced for older students. This suggests that summer programs may be more effective when teachers know their students, are familiar with their learning styles and behaviors, and are able to extend school year relationships into the summer.

- There is evidence that Summer Bridge students had slightly larger learning gains over two years than comparable students who did not attend the program. Although these results are encouraging, the effects were small. Summer Bridge did not substantially alter low-achieving students' school year learning rates; it appeared to help keep these students on track, but did not change their learning trajectories. **The program provided a short-term intervention that allowed low-achieving students to raise their test scores and may have provided an extra boost that kept them from falling further behind**.

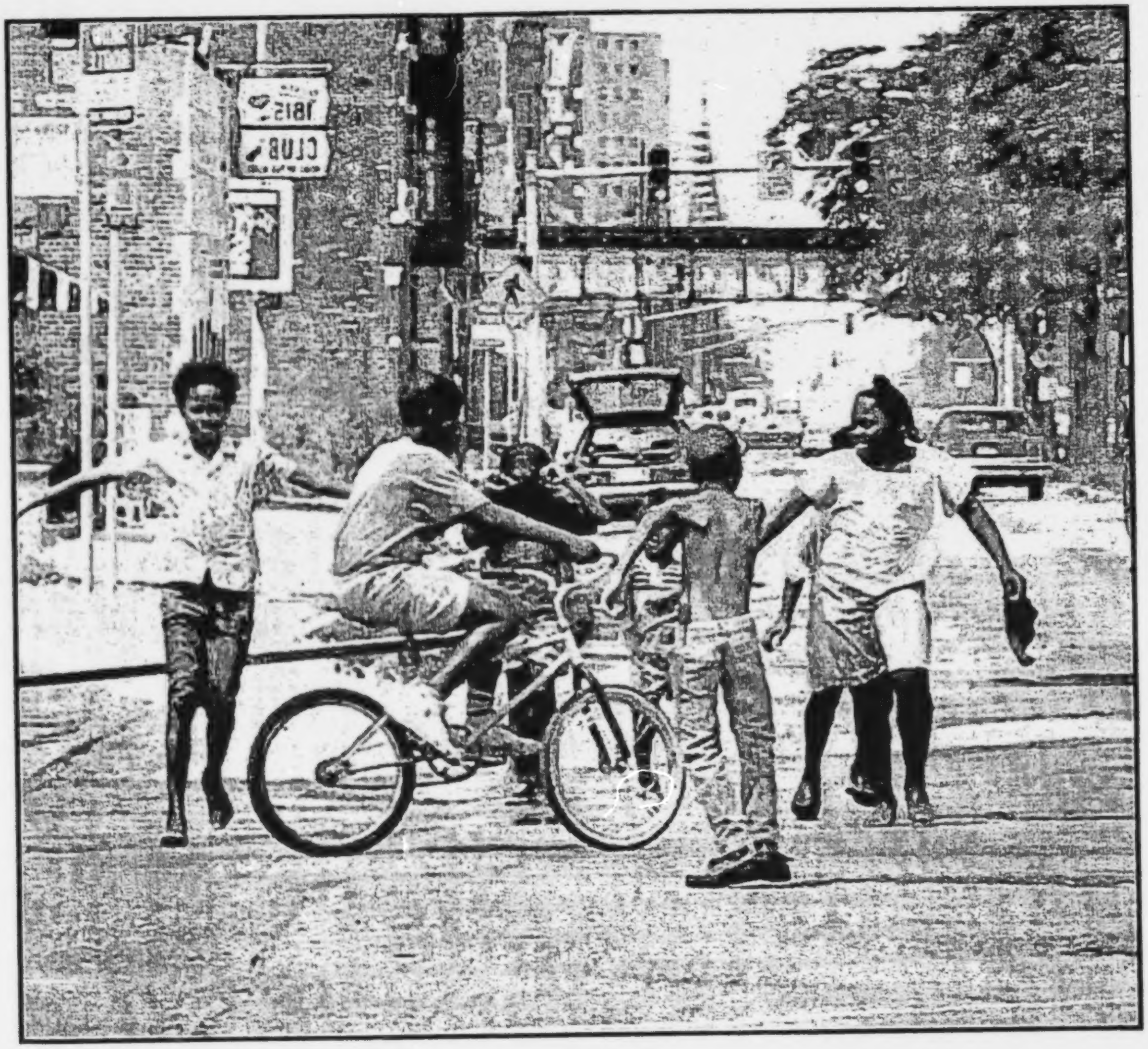
- **Higher achieving schools ran more effective Summer Bridge programs**. Students who attended Summer Bridge in schools with higher achievement during the school year had larger test-score gains than students in lower performing schools. These differences were most pronounced in the third grade. Teachers in higher performing schools were more positive about the learning environment in Summer Bridge and reported paying more attention to the individual needs of students. These practices were associated with larger adjusted test-score increases. Thus, we do not find that Summer Bridge, even with its mandatory curriculum and uniform materials, ameliorated differences in quality across schools.

- The Summer Bridge curriculum contributed to consistency in topics covered, pacing, and skills focus. For the most part, teachers followed the curriculum. This seemed to play a critical role in ensuring exposure to similar content across classrooms. We still found differences in instruction across classrooms, however. Our look at instruction showed that **the quality of interactions between teachers and students was a distinguishing factor between the most effective Summer Bridge classrooms and the average classroom**. A relatively small proportion of teachers taught in ways that engaged students, provided substantive feedback, and worked to address individual learning needs. Students in these teachers' classrooms had larger learning gains in the program.

- Teacher surveys and classroom observations suggest that summer programs that rely on mandatory curricula are not "teacher proof." **Students whose teachers spent more time individualizing the curriculum and working with students outside of class had greater learning gains than students in classrooms where teachers spent less time adapting the curriculum and providing individualized attention.**

We find that summer programs may be a useful intervention for students who are behind, but they are not a substitute for effective instruction during the school year. There is no evidence that Summer Bridge affected school year learning rates nor did it address the fact that participating students continued to show low performance. Summer Bridge does not change students' experiences during the school year. What we have learned is that summer can provide an opportunity for teachers to work closely with students in an environment that is different from the school year and can benefit students who are in need of extra support. Indeed, our analysis suggests that part of the reason why students reacted positively to Summer Bridge was because it contrasted dramatically with their school year experiences. Not surprisingly, when Summer Bridge students return to regular school-year environments, they appear to return to their previous learning rates. Thus, we do not find evidence that a one-time summer intervention is an effective means of addressing the long-term learning needs of low-achieving students.

The goal of this report is to inform policy making both in Chicago and nationally. Even though this report provides a comprehensive look at Chicago's Summer Bridge program, it is a look at only one program embedded in a very specific policy initiative. The interpretive summary discusses what this study may tell us about the effects of summer programs under high-stakes testing and what issues might arise both in Chicago and nationally as policymakers and educators grapple with the findings. The report also includes commentaries from the following experts on summer school and accountability policies: Geoffrey Borman, William Clune, John Portz, and Harris Cooper and Jeffrey Valentine.



John Booz

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INTRODUCTION AND REPORT OVERVIEW

Until recently, the summer offerings of most major school systems were an array of small and diverse programs such as remedial or accelerated summer school classes or programs for special populations. While such efforts provided supplemental opportunities, they were not viewed as core elements of school systems' instructional programs or reform initiatives. In 1997, the Chicago Public Schools (CPS) began a national trend when it made a required summer program, Summer Bridge, a central component of its effort to end social promotion. Mandatory summer programs have since expanded rapidly as school administrators struggle with how to provide extra support to help students meet the demands of high-stakes testing. In the past several years, New York, Los Angeles, Boston, San Diego, and Baltimore, among other cities, ran large mandatory summer programs.[1] Estimates suggest that over a quarter of the nation's school districts use summer school participation as a criterion for promotion to the next grade.[2]

Summer programs are both administratively and fiscally costly. They require keeping buildings open all year, mounting programs in short periods of time, and processing test-score results quickly in order to inform students and schools of their participation. They take away from professional development and programming time. And, they require convincing tired teachers and students to gear up and commit to working during what has historically been seen as sacred vacation time. Is it worth the effort? Are mandatory summer programs an effective means of providing support to students under high-stakes testing?

While not the largest, Chicago's Summer Bridge program was certainly the harbinger of a national trend, the most ambitious in its design, and the program that was most closely linked to Chicago's successes in ending social promotion. This report takes a careful look at Chicago's experience in this effort and the program's outcomes. Was Summer Bridge effective in gaining high rates of participation, raising students' test scores, and increasing their chances of promotion? How did students view their participation in the program and how did teachers approach instruction? This report examines the extent to which instruction varies across schools and whether differences across classrooms in staffing and instruction shape what impact the program has. It also looks at the longer-term effects of summer programs, a topic on which there has been little prior research.

The Policy Context

The recent expansion of summer programming in urban school systems has largely resulted from the introduction of high-stakes testing and efforts to end social promotion.[3] Over the past several years, most major school systems in the country have adopted policies to end social promotion. While the details of such policies vary, a common theme is that students must meet minimum test-score cutoffs or be retained. Many school systems are struggling, however, with the question of how best to provide low-achieving students the extra support they will need to meet these new expectations. An increasingly popular option is to use the summer for extended instructional time.

Adding extra time is an appealing strategy. Past research finds that increased instructional time has positive effects for low-achieving students.[4] Multiple studies also document that impoverished students lose ground during the summer months, particularly in reading, and that this "summer learning loss" may be an important reason why low-income children fall behind their more advantaged counterparts.[5] All of this suggests that summer is an opportune time to intervene and provide extra support for low-achieving students.

At the same time, research on the effects of summer school has found that low-income students often do not benefit as much from summer programs as more advantaged students.[6] We also know much less about the impact of summer support programs under high-stakes testing. The mandatory nature of Summer Bridge and its highly structured approach may remedy such problems as low attendance, uneven program quality, and short program duration that often plague summer programs in urban areas.[7]

Critics worry, however, that the strategy of providing summer programs under high-stakes testing could fall short of the goal of truly improving student achievement. First, there is a concern that summer programs linked to high-stakes exams will focus primarily on short-term test preparation and will not give students useful learning experiences that can be sustained over time. Second, there is a concern that such efforts will not adequately meet the needs of low-achieving students. The short duration of such programs and the second chance to pass the test may benefit students who are close to the promotional cutoffs, but may leave struggling students behind. Third, the size of many of these initiatives raises questions about quality. Can large school systems have high-quality programming while mounting these expansive efforts on top of maintaining their existing school structure? Without addressing differences in the quality of instruction across schools, critics worry that such initiatives will exacerbate existing differences in school quality, with students in better performing schools receiving higher quality programming than students in lower performing schools.

This report was written with these policy debates in mind. We look at the extent to which program effects and student experiences vary by the race, ethnicity, gender, and achievement characteristics of students and of the schools they attend. We also examine the extent to which teachers' perceptions of the effectiveness of the curriculum and the program vary by school composition.

Summer Bridge in Chicago

The centerpiece of Chicago's effort to end social promotion, which was adopted by the system in the 1996-

97 school year, is a set of promotional test-score cutoffs for third, sixth, and eighth graders. Students in these grades must achieve a minimum score on the Iowa Tests of Basic Skills (ITBS) in reading and mathematics in order to be promoted to the next grade. Students who do not meet the criteria in the spring are required to participate in the Summer Bridge program and are retested at the end of the summer. Those who again do not meet the criterion are evaluated for retention or, if they will be 15 years old by December 1 of that year, are sent to alternative schools called Academic Preparatory Centers. Between 1996 and 2000, approximately one-third of third, sixth and eighth graders failed to meet the test-score cutoffs by the end of the school year. In each year, more than 21,000 students in these grades were required to attend Summer Bridge.

From the start, Summer Bridge was seen as the innovation that set Chicago's efforts apart from previous unsuccessful initiatives to end social promotion using high-stakes testing.[8] Summer Bridge is intended to give students the extra help they need to remediate poor skills, provide intensive preparation for taking the ITBS, and give students a second chance for promotion. Summer Bridge is distinguished by its small class size, highly prescribed and centrally developed curriculum, and its mandatory high-stakes approach. The average class size in Summer Bridge is 16. There is a centrally developed curriculum that is aligned to the content on the ITBS. Teachers are provided with daily lesson plans and all instructional materials, and they are expected to keep up with the pace of the lesson plans. Monitors visit classrooms to check if teachers are maintaining the expected pace.[9] Finally, the mandatory nature of the program, with participation followed by re-testing, is intended to increase student motivation, attendance, and work effort.

Early evidence on the effects of Summer Bridge was promising. In a report on the progress of the first group of students who faced the promotional standards, researchers at the Consortium on Chicago School Research concluded that Summer Bridge and the second chance opportunity it afforded was effective in raising the proportion of students who met the test-score criterion for promotion.[10] This early evidence suggested that Summer Bridge might be a useful approach to provide support for students under Chicago's high-stakes testing policy. At the same time, these results also raised a host of new questions. Does Summer Bridge actually produce test-score improvements for all low-skilled students, or does it simply provide an extra boost for the students closest to the cutoffs and leaves the lowest skilled students behind? Do early positive results mean that Summer Bridge provides an effective and supportive learning environment, or is the program simply test

The Ending Social Promotion Study

This report is one in a series of Consortium on Chicago School Research reports that began in 1999 with the publication of *Ending Social Promotion: Results from the First Two Years*. An update to this report was published in 2000. The first report provided initial findings on students' passage through the promotional gates; passing rates; Iowa Tests of Basic Skills achievement trends; and differences in exclusion, passing, waiver, and retention rates. The Consortium will be releasing two more major reports on ending social promotion. The first is an analysis of changes in instruction in the Chicago Public Schools (CPS) since the introduction of accountability for students and schools in 1996. The final report will be an extensive analysis of grade retention in CPS since this set of policies was adopted. That report will examine the effects of grade retention on students and on the school system as a whole. It will also include analysis of the impact of this initiative on dropout rates, students in special education, bilingual education, and on those who are sent to Academic Preparatory Centers.

preparation geared to raising students' scores on one test? Finally, what is the importance of each of the program's components—small class size, mandatory curricula, and high-stakes approach—in producing these results?

In order to address these questions, we must look beyond passing rates to examine test-score increases, student experiences, and instruction. Since 1998, a team of researchers has assembled a large and diverse data set that enables us to explore critical aspects of Summer Bridge including student and teacher experiences, the nature of instruction, and the program's short- and long-term effects on test scores. We analyzed student achievement in the program, surveyed teachers and students in Summer Bridge, interviewed teachers and students about their experiences, and conducted in-depth classroom observations in 12 schools. This report brings together this qualitative and quantitative research for a multifaceted look at Summer Bridge.

Report Overview

Chapter 1 begins by providing a basic overview of the Summer Bridge student population and the characteristics of the program. We examine the number of students who attended the program from 1997 to 2000 and describe their demographic and achievement characteristics. We then look at the basic characteristics of the program. Do most schools staff their Summer Bridge classrooms with teachers who had taught there previously? Are teachers teaching in the same grades and subjects as during the school year? Do these characteristics vary across grades? What does it mean that the Summer Bridge curriculum is aligned to the ITBS? Finally, what skills does the program emphasize, and how is the curriculum structured?

Chapter 2 examines the short-term effects of Summer Bridge on test-score gains and on the proportion of students who meet the test-score cutoffs for promotion. This chapter estimates achievement gains in the program in each of the program's first four years (1997 through 2000) and by students' prior levels of achievement, demographic characteristics, and the characteristics of the schools they attend. We compare test-score increases in Summer Bridge to those in other summer programs and to the gains that students who attend Summer Bridge experience during the school year. Finally, Chapter 2 examines this question: To what extent do short-term gains over the summer translate into the outcome that is most important for students—meeting the test-score cutoffs for promotion?

Chapter 3 looks at students' assessments of the quality of their experiences in Summer Bridge. This chapter uses student survey data collected both during the school year and summer in 1999, as well as qualitative interviews with students to explore how they assessed the academic orientation of their classrooms and the personal support they received from teachers in Summer Bridge. We compare those portrayals to students' assessments from the school year.

> *The results presented here raise critical questions about the generalizability of findings and the design of effective summer programs. Throughout the report, we have tried to structure our analysis so that it can best inform these policy debates.*

The first three chapters garner evidence for whether Summer Bridge provides an effective intervention in the short term. In Chapter 4, we turn to the teachers' perspectives. Using results from both teacher surveys and interviews, we examine how teachers attempted to meet students' needs in Summer Bridge and their evaluation of the curriculum and overall learning environment. This chapter looks at the extent to which teachers in Summer Bridge differed in their instructional approach and level of connection to their students, and whether these characteristics mattered in terms of students' test-score gains.

Chapter 5 takes an in-depth look at instruction in Summer Bridge through analysis of classroom observations. This chapter is intended to examine the link between program design and actual implementation. Did teachers actually follow the prescribed lesson plans? How much did teachers shape the quality of how the curriculum was put into practice? Was instruction in Summer Bridge only guided by the topics covered on the ITBS or did most teachers simply revert to "teaching to the test?" Answering these questions is critical if we are to understand both why students experience test-score increases in Summer Bridge and the role of programmatic structure in shaping program quality.

Ultimately, whether programs are effective depends upon whether short-term gains are sustained over time. The final chapter of this report presents an analysis of whether Summer Bridge test-score gains are sustained. It compares the two-year learning gains of students who attended Summer Bridge who were slightly below the test-score cutoffs to those of students who did not attend the program because they were slightly above the cutoffs. The sharp "discontinuity" in the likelihood of program participation created by the use of test-score cutoffs provides a comparison group for students who attended Summer Bridge, allowing us to explore whether the outcomes of the two groups were similar.

This report focuses on the students who attended Summer Bridge in high-stakes testing grades (third, sixth, and eighth) from 1997 to 2000. Over the past several years, CPS has expanded summer school to encompass other groups, including first and second graders with low test scores and all third, sixth, and eighth graders with below-grade-level test scores. This report does not examine the effects of the Summer Bridge expansion.

We also restrict the analysis to students who were first-time Summer Bridge participants. As part of the CPS promotional policy, students who were retained are required to attend Summer Bridge again if they do not meet the promotional test-score cutoffs after a second time in that grade. In related reports, we examine the progress of these retained students.[11] This report restricts analysis to first-time Summer Bridge enrollees in order to distinguish between the effects of Summer Bridge and the effects of retention.

Finally, we have asked five scholars to comment on this study and our findings, including commentary on its strengths and shortcomings, its contribution to research and policy, and to place it in the context of related research and policy issues. These are included at the end of this report. We thank them for their thoughtful contributions.

The Goal of This Report

The goal of this report is to inform policy making both in Chicago and nationally. We hope that school districts and policy makers throughout the United States will be able to use this report to engage in discussions about their own initiatives and the potential role that summer programs can play under high-stakes testing. While this report provides a comprehensive look at Chicago's Summer Bridge program, it is a look at only one program embedded in a very specific policy initiative. The results presented here raise critical questions about the generalizability of findings and the design of effective summer programs. Throughout the report, we have tried to structure our analysis so that it can best inform these policy debates. The interpretative summary discusses what we have learned so far and what issues might arise both in Chicago and nationally as policymakers and educators grapple with our findings.[12]

John Booz

CHAPTER 1

Overview of the Summer Bridge Program

The Chicago public schools system has one of the largest mandatory summer school programs in the country. From the program's first year in 1997 through 2000, over 21,000 third-, sixth-, and eighth-grade students were required to attend each year.[1] Summer Bridge is targeted at students with the lowest skills. The CPS central administration requires that schools provide Summer Bridge and permits little flexibility in the program's curriculum and design. This chapter looks at multiple data sets to address the following questions: Which students actually attend Summer Bridge? Who teaches in the program? And, what is the nature of the mandatory curriculum?

Student Characteristics and Testing Rates in Summer Bridge

Who Is Required to Attend?

The centerpiece of the system's efforts to end social promotion is a set of minimum test-score cutoffs in reading and mathematics on the Iowa Tests Basic Skills (ITBS). Students in the third, sixth, and eighth grades need to reach these cutoffs or they are required to attend Summer Bridge. The policy does not, however, apply strictly to all students in these grades. Students are not included under this policy if they are in special education or have been in bilingual education for four years or fewer.[2] (Initially, the bilingual education criterion was three years or less. In 1999, it was extended to four years.)

Initially, the CPS promotional test-score cutoffs were relatively low: 1.0 year below grade level for third graders, 1.5 years below grade level for sixth graders, and 1.8 years below grade level for eighth graders. Even with these low test-score cutoffs, a high proportion of included students failed to meet the promotional criteria and was required to attend Summer Bridge. In 1997, the first year of the program, almost half of third graders (48 percent), 35 percent of sixth graders, and 27 percent of eighth graders failed to meet the promotional criteria at the end of the school year and were required to attend Summer Bridge (see Figure 1-1). The number of third- and sixth-grade students who did not meet the cutoff was highest in the first year. The number of eighth graders who did not meet the cutoff, however, has not declined, as the eighth-grade test-score cutoffs have been raised each year.

Although a high proportion of Chicago students in the promotional gate grades were required to attend Summer Bridge, the odds of attending depended, to a large extent, on students' prior achievement. We evaluated the chance that students at different achievement levels would have to attend Summer Bridge based on how far behind the promotional test-score cutoffs students were upon entry into the promotional gate grade. Because there is often variation in a student's performance from test to test (aside from expected test-score increases from year to year), any one test score will have some error of measurement. To obtain the best estimate of students' true abilities, we examined students' entire test score trajectories prior to the promotional gate grade rather than their last observed test score.[3] Because our results did not differ across program years, we present results for 1999.

We grouped students into three different risk categories: high, moderate, and low. Students who would have to increase their reading test scores by over 1.5 grade equivalents (GEs) in one year—over twice the normal test-score improvement rate for low-achieving students—to make the promotional cutoff were considered high risk. Students who needed average to above average increases (0.5 to 1.5 GEs) were characterized as moderate risk. Students who needed increases that were less than 0.5 GEs were considered low risk.

Very few high-risk third and sixth graders met the cutoffs for their grade (See Figure 1-2). Thus, the promotional policy had the effect of requiring summer school attendance for all students with the lowest ITBS test scores. Passing rates were significantly higher among students at moderate risk. Approximately 64 percent of third-grade students and less than half of sixth- and eighth-grade students whom we characterized as being at moderate risk of retention were required to attend Summer Bridge. Finally, very few

Data Used in This Chapter

This chapter draws on two primary sources of data. First, this report draws on student test-score files and other administrative records provided by CPS. These official school records include demographic information on students (age, gender, race, and ethnicity), test scores on the Iowa Tests of Basic Skills for students' entire school careers, and administrative information such as students' grade level, schools attended, and special education/bilingual status.

Second, in summer 1999, the Consortium on Chicago School Research surveyed all Summer Bridge teachers. The Summer Bridge surveys, administered during the last week of the program, included questions on teachers' backgrounds and classroom composition. The survey asked teachers to assess the quality of the Summer Bridge curriculum and materials, to report on their instruction, and to assess the needs and performance of their students. Surveys were collected from 1,335 teachers (556 third grade, 434 sixth grade, and 345 eighth grade). Of the 341 schools that had third graders in the 1999 Summer Bridge program, 295, or 87 percent, participated in the survey. A total of 323 schools had sixth-grade Summer Bridge in 1999, and 84 percent participated in the survey. The proportion is slightly smaller in the eighth grade, where 297 schools ran eighth-grade Summer Bridge, and 234, or 79 percent, participated.

FIGURE 1-1

More Third Graders Than Sixth Graders Had to Attend Summer Bridge

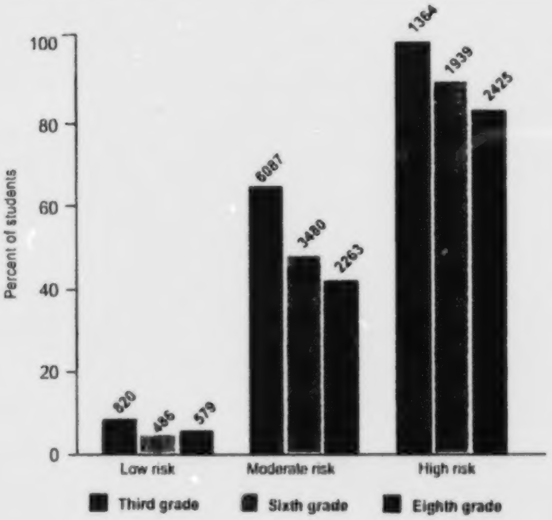
Number of Third, Sixth, and Eighth Graders Required to Attend Summer Bridge, 1997-2000

	1997	1998	1999	2000
Third Grade				
Total tested*	23,483	23,299	24,277	24,680
Number not meeting cutoff, spring	11,279	9,105	8,819	9,378
Percent not meeting cutoff, spring	**48%**	**39%**	**36%**	**38%**
6th Grade				
Total tested*	24,833	24,196	24,208	22,973
Number not meeting cutoff, spring	8,585	6,687	6,256	6,422
Percent not meeting cutoff, spring	**35%**	**28%**	**26%**	**28%**
8th Grade				
Total tested*	22,229	22,890	21,804	22,719
Number not meeting cutoff, spring	5,980	6,862	5,860	8,517
Percent not meeting cutoff, spring	**27%**	**30%**	**27%**	**37%**
Totals for Promotional Gate Grades				
Total tested*	70,595	70,385	70,289	70,372
Number not meeting cutoff, spring	25,841	22,654	20,935	24,317
Percent not meeting cutoff, spring	**37%**	**32%**	**30%**	**35%**

* Total tested refers to the total number of students tested who were included under the policy.

FIGURE 1-2

Most Students at High Risk of Retention Had to Attend Summer Bridge, 1999



Risk categories are based on predicted reading scores from the prior year. Numbers are for all included students who failed to meet reading and/or math test-score cutoffs in spring and were required to attend Summer Bridge. Similar results were observed in other years. In 1999, 52% of 3rd graders, 59% of 6th graders, and 55% of 8th graders were characterized as being at low risk of retention. The percentages for moderate risk are: 42% of 3rd graders, 32% of 6th graders, and 29% of 8th graders. Finally, 6% of 3rd graders, 9% of 6th graders, and 16% of 8th graders were characterized as high risk.

The Chicago Public Schools' Test-Score Cutoffs

Under the Chicago Public Schools' (CPS) policy, third, sixth, and eighth graders need to meet test-score cutoffs on the Iowa Tests of Basic Skills (ITBS) in reading and mathematics in order to be promoted. The test-score cutoffs are set using the grade equivalent (GE) metric. One month corresponds to 0.1 GE; therefore, 10 months equal one academic year or one GE. The ITBS reports results in GEs on national norms where a student is considered on grade level if, when taking the test in the eighth month of the school year, she obtains a score of that grade plus eight months. Thus, a third grader is considered to be reading at grade level on national norms if her ITBS score is a 3.8.

Between 1997 and 2000, the CPS promotional test-score cutoff for third graders was set at 2.8 GEs, one year below grade level. The sixth-grade cutoff was set at 5.3, which was 1.5 years below grade level at 6.8. In 2000, this was raised to 5.5. The eighth-grade cutoff was initially set at 7.0, 1.8 years below grade level at 8.8. In 1998, the cutoff for eighth grade was raised to 7.2. In 1999, it was raised to 7.4, and it was raised again, to 7.7, in 2000.

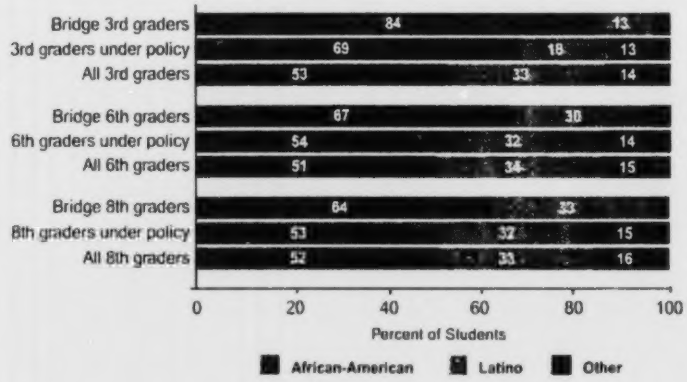
Chicago Public Schools Promotional Test-Score Cutoffs

	1997	1998	1999	2000
Third Grade				
Cutoffs	2.8	2.8	2.8	2.8
National Norms	3.8	3.8	3.8	3.8
6th Grade				
Cutoffs	5.3	5.3	5.3	5.5
National Norms	6.8	6.8	6.8	6.8
8th Grade				
Cutoffs	7.0	7.2	7.4	7.7
National Norms	8.8	8.8	8.8	8.8

FIGURE 1-3

Almost All Summer Bridge Students Are African-American or Latino

Racial/Ethnic Composition of Students Included under the Policy and Required to Attend Summer Bridge



Numbers are averaged over 1997-2000. Bilingual program students and special education students are excluded from the policy. In third grade, 11% of African-Americans, 62% of Latinos, and 37% of other students were excluded. In sixth and eighth grades, about 17% of African-Americans, 24% of Latinos, and 26% of other students were excluded from the policy.

low-risk students failed in spring or had to attend Summer Bridge. Thus, it does not appear that many students who entered the promotional gate grade with test scores already within range of the test-score cutoffs were required to attend the program.

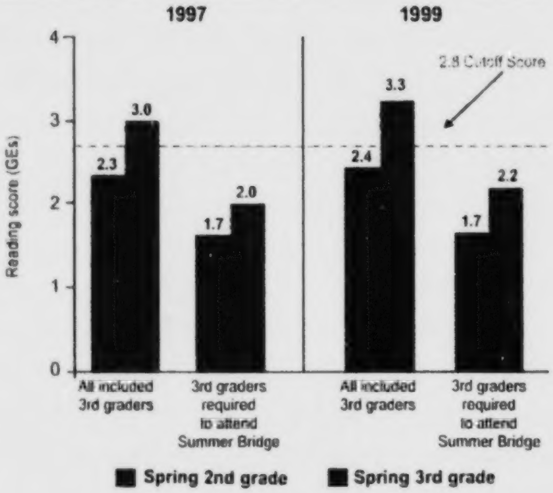
Like many large urban school systems, CPS serves a predominantly minority student body. Over the course of this study, over half of CPS students in the promotional gate grades were African-American, and approximately one-third were Latino (see Figure 1-3). The decision to exclude students who had been in the bilingual program for three years or less meant that a large proportion of Latino students were excluded from the promotional policy. This was particularly true in the third grade. Although Latino students represent one-third of CPS third graders, they account for only 18 percent of third graders included in testing. The proportion of Summer Bridge students who were Latino was quite similar to the proportion of included students who were Latino. African-American students, however, are substantially overrepresented in Summer Bridge both because they are less likely to be excluded from the policy and because, among included students, African-Americans have substantially lower test scores on average.[4] Approximately two-thirds of Summer Bridge sixth and eighth graders and over 80 percent of Summer Bridge third graders were African-American.

What Are the Achievement Characteristics of Summer Bridge Students?

Our look at students' risk of attending Summer Bridge suggests that most of the students with the lowest skills in the promotional gate grades did not meet the cutoffs in the spring. How far behind was the average Summer Bridge student when entering? In 1997, the average ITBS reading score of a third grader who was required to attend Summer Bridge was 2.0 (see Figure 1-4a). Thus, in order to be promoted, on average, a third grader had to increase her test score by 0.8 GEs, or 8 months, during the six-week program. Unfortunately, on average, these students increased their reading test scores by only three

FIGURE 1-4A

Average Second- and Third-Grade Reading Scores for Third Graders Required to Attend Summer Bridge Compared to All Third Graders



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months during the prior school year. We see a similar pattern in other grades (see Figures 1-4b and 1-4c). The average sixth grader in Summer Bridge in 1997 needed to raise her test score by nine months and an average eighth grader by over a year (11 months) to meet the cutoffs. Thus, Summer Bridge students in 1997 entered the program needing substantial test-score increases in order to meet the promotional cutoffs.

Some of the very low test scores and small gains during the school year among students who needed to attend Summer Bridge were due to the fact that students were evaluated using only one score that may have been the result of a bad testing day (we address this problem in Chapter 2). Students who had abnormally low test scores might exaggerate the observed overall achievement gaps of students who failed to reach the cutoffs. Looking at their pre-promotional gate grade test scores (fifth grade, for example), we see that this group was at substantial risk the year before as well. The average sixth grader who was required to attend Summer Bridge entered sixth grade with reading scores over a year and seven months (1.7 GEs) below grade level, over a year below the average CPS student. Thus, not only did Summer Bridge students have very poor test performance, on average, in reading at the end of sixth grade, but these students were also, as a group, consistently behind.

The test-score gap faced by Summer Bridge students decreased somewhat between 1997 and 1999. In 1999, the average May test score of third and sixth graders in Summer Bridge was two months higher than in 1997—meaning that students in these years were, on average, two months closer to the test-score cutoff on entry into Summer Bridge. This was also true in eighth grade, despite the yearly increase of the promotional test-score cutoffs. Thus, improvements in performance during the school year both reduced the number of students who were required to attend Summer Bridge and left those students who failed to meet the promotional cutoffs during the school year with a smaller test-score gap to close over the summer.

Throughout this report, we focus more on reading than mathematics. We do so because most students attend Summer Bridge because they fail to meet the cutoff in reading. Over 85 percent of third and sixth graders and over three-quarters of eighth

FIGURE 1-4B

Average Fifth- and Sixth-Grade Reading Scores for Sixth Graders Required to Attend Summer Bridge Compared to All Sixth Graders

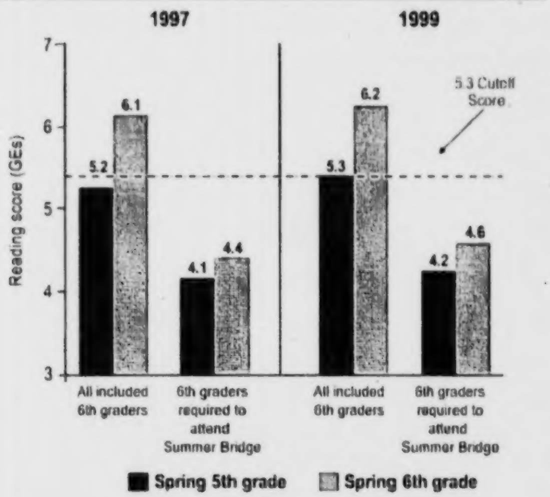
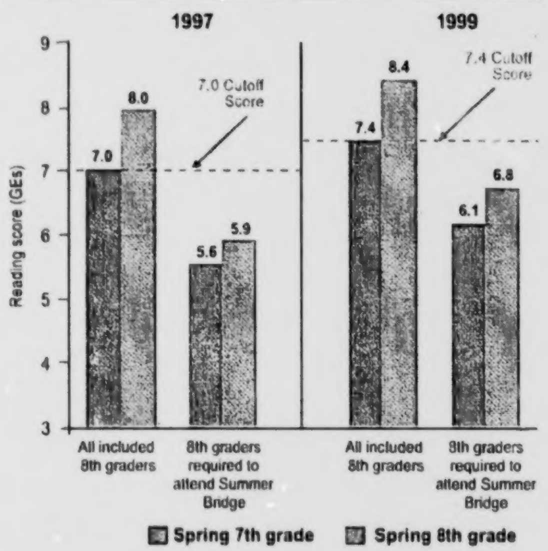


FIGURE 1-4C

Average Seventh- and Eighth-Grade Reading Scores for Eighth Graders Required to Attend Summer Bridge Compared to All Eighth Graders



graders attend Summer Bridge because they failed to meet the promotional criteria in reading or in both reading and mathematics. The proportion of students meeting the promotional criteria in mathematics increased between 1997 and 2000 so that, particularly in the third and sixth grades, increasing proportions of Summer Bridge students had already met the test-score cutoff in mathematics (see Figures 1-5a, 1-5b, and 1-5c).

Once in Summer Bridge, students receive instruction in both subjects regardless of which cutoff they missed. In a previous report, we found that students who had to raise their test scores in both reading and mathematics had less success in meeting the test-score cutoffs in Summer Bridge than those who had to raise their test scores in only one subject.[5] The increasing numbers of students meeting the mathematics cutoffs resulted in a drop in both the proportion of students who had to attend Summer Bridge for mathematics and the proportion who had to attend for both mathematics and reading. By 2000, over half of third- and sixth-grade Summer Bridge students needed to raise their test scores in reading only. In 2000, the training for Summer Bridge teachers included the recommendation that teachers take into account that, in many cases, the majority of their students would need to meet the cutoffs in reading but not necessarily in mathematics. In eighth grade, however, we see a different trend. Raising the cutoffs increased the number of eighth graders who needed to raise both their reading and mathematics scores for promotion.

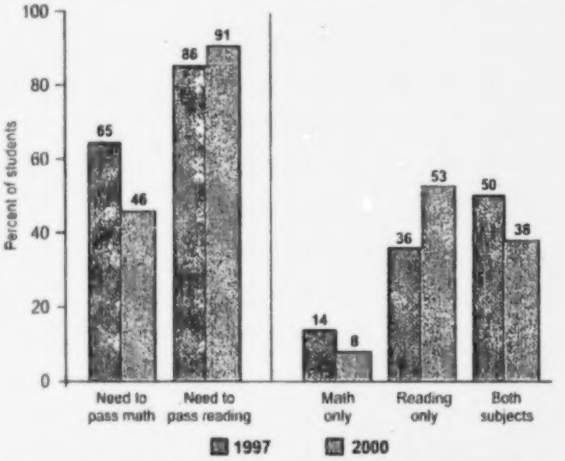
How Many Students Actually Attend Summer Bridge? Estimating Testing Rates

So far, we have described the characteristics of CPS students who are required to attend Summer Bridge, or, in other words, those students who did not meet the promotional criteria in the spring. An important question in both evaluating the role of summer programs under high-stakes testing and interpreting results is: How many of these students actually attended the program?

FIGURE 1-5A

Almost All Summer Bridge Third Graders Needed to Improve Their Reading Scores

Third Grade, 1997 and 2000



The test-score cutoff for 3rd grade was 2.8 in 1997 and 2000. Percentages are for included students only.

The CPS Summer Bridge policy states that attendance is mandatory for students who do not meet the test-score cutoffs in the spring of the promotional gate grades. Students who miss three or more days of the program are not supposed to be allowed to take the ITBS in August, although this aspect of the policy may not be enforced evenly across schools. Although teachers in Summer Bridge take attendance, those records are not centrally located. Thus, we do not know exactly how many students who fail to meet the cutoffs actually go to Summer Bridge, nor do we know what the absence rates are for students who attend.

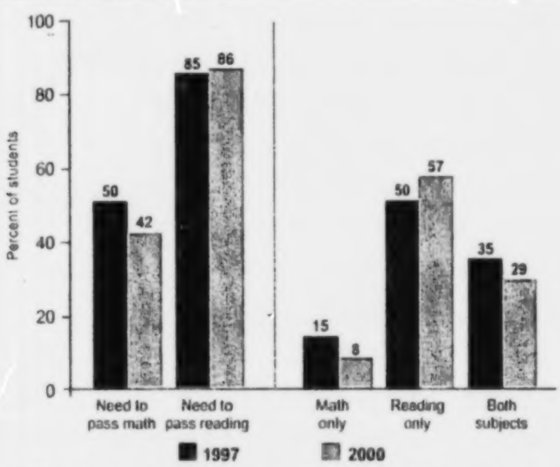
We do know, however, which students failed to meet the test-score cutoffs at the end of the school year and which students took the ITBS at the end of the summer. If we assume that most teachers enforced the attendance policy, we can gain an estimate of participation in the program by comparing the number of students who failed to meet the test-score cutoffs in spring with the number of students who took the ITBS after Summer Bridge. We call this the "testing rate."

Using this method we see that, in each year, over 80 percent of students who did not meet the test-score

FIGURE 1-5B

About Half of Summer Bridge Sixth Graders Needed to Pass Mathematics

Sixth Grade, 1997 and 2000

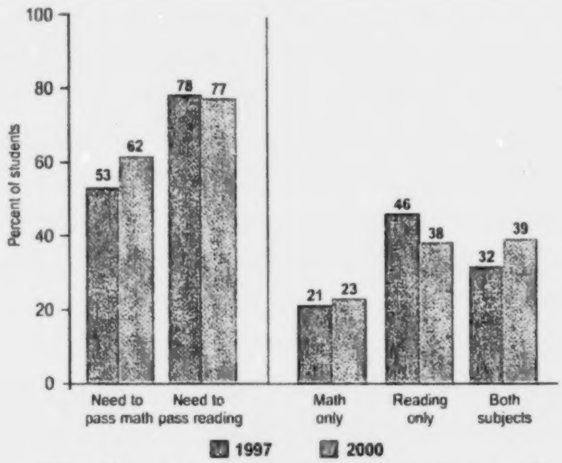


In 1997, the test-score cutoff for 6th grade was 5.3. In 2000, it was increased to 5.5. Percentages are for included students only.

FIGURE 1-5C

As the Test-Score Cutoffs Were Raised, More Eighth Graders Needed to Pass Both Subjects

Eighth Grade, 1997 and 2000



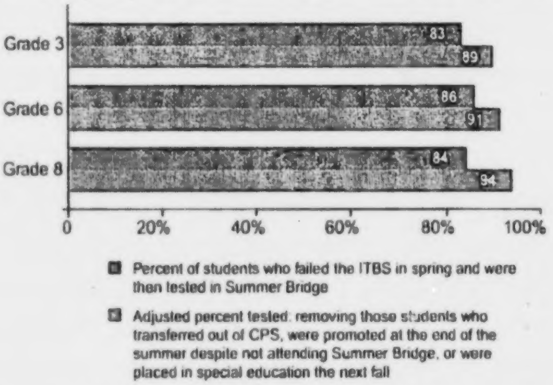
In 1997, the 8th grade test-score cutoff was 7.0. By 2000, it had increased to 7.7. Percentages are for included students only.

cutoffs in spring took the ITBS in August (see Figure 1-6). This method, however, most likely underestimates participation in the program. First, some students who fail in spring may leave the school system altogether by moving to another school district or transferring to a private school. Second, some students may receive "waivers" in June, meaning that because of extenuating circumstances, their schools exempted them from the policy and from attending Summer Bridge. Third, some students may not have been required to attend Summer Bridge if, at the end of the school year, they were in the process of being placed in special education. About half of students who failed to meet the ITBS cutoffs in spring and *did not* take the test in August left the school system, moved into special education, or were promoted (despite not meeting the test-score cutoffs or attending Summer Bridge) in the next school year. We calculated an "adjusted testing rate" in Summer Bridge accounting for these legitimate reasons for not attending the program. The adjusted rates suggest that in 1999, over 90 percent of students who were required to attend Summer Bridge and did not fall into one of the three exclusion categories described above were tested at the end of the summer. These testing rates have been relatively constant across years. Thus, a very high proportion of students who are required to attend the Summer Bridge program are tested, although we do not have data on how often these students attended.

In addition to looking at overall participation rates, we examined how adjusted testing rates varied by

FIGURE 1-6

Testing Rates in Summer Bridge Were High



Numbers are for 1999. Patterns for other years are similar. 1,506 third graders did not meet the cutoffs in spring 1999 and did not have summer scores. The next year, 190 of these students attended a school outside of the system, 91 were moved to a special education classroom, and 395 were promoted without having participated in Summer Bridge or meeting the ITBS cutoffs (these promotions are called "waivers").

An average class size of 16 students means that most students and teachers experience dramatic reductions in class size between Summer Bridge and the regular school year.

students' academic risk, gender, and race and ethnicity. Our analysis found that August testing rates were almost identical across grades, by gender, and between racial and ethnic groups. In the third and sixth grades, students with the lowest test scores (high-risk students) did have slightly lower testing rates in Summer Bridge, although this difference was not substantial.

Programmatic Characteristics of Summer Bridge

The purpose of Summer Bridge is to provide students extra instructional time in reading and mathematics for those content areas that are tested on the ITBS. Third and sixth graders attend the program for three hours per day for six weeks—a total of 90 hours of instruction. Eighth graders attend four hours per day for seven weeks, for a total of 140 hours of instruction. Schools are given no flexibility in the design of the curriculum; teachers are expected to teach a prescribed curriculum that is aligned with the ITBS and are provided all needed classroom materials in order to enact it.

Student Assignment, Class Size, and Staffing Characteristics

Initially, Summer Bridge was designed so that all students would attend the same school that they attended during the school year.[6] During the program's first two years, CPS provided transportation for students whose home schools were not their neighborhood schools. In 1999, CPS changed this policy because of budgetary concerns, and students were required to attend their neighborhood elementary school for Summer Bridge regardless of whether they attended that school during the year. This policy change resulted in a small drop in the number of students attending their regular school for the summer program. In 1999 and 2000, over 80 percent of Summer Bridge students attended the same school during the summer as in the regular school year.

A central programmatic characteristic of Summer Bridge is its small class size. Schools are provided funding for one teaching position for every 18 students. On the 1999 Summer Bridge survey, we asked teachers to report their class size. Teachers reported, on average, class sizes of 16 students (see Figure 1-7). Close to half of teachers (46 percent) reported that their class size was between 13 and 17 students. Twenty-four percent reported particularly small class sizes (below 12 students), and 30 percent of teachers reported class sizes over 18. There was negligible difference across grades and schools in teachers' reports on class size.

An average class size of 16 students means that most students and teachers experience dramatic reductions in class size between Summer Bridge and the regular school year. According to contractual agreement, elementary schools receive funding for one classroom teaching position per 29 students in kindergarten through third grade and one position per 31 students

FIGURE 1-7

The Average Summer Bridge Class Size was 16 in 1999*

	Third	Sixth	Eighth	Total
Percentage of teachers who had:				
12 or fewer students	25%	23%	23%	24%
13 to 17 students	47%	49%	42%	46%
18 or more students	29%	28%	35%	30%
Average number of students	16	16	16	16
Total number of classrooms	541	422	333	1,296

* As reported by teachers on the 1999 Summer Bridge survey.

The Cost of Summer Bridge

An important question to consider in evaluating the effectiveness of Summer Bridge is: How much does the program actually cost? Expenses for Summer Bridge can be broken down into three categories: teachers and materials, administration, and operations (transportation and security).

1. Teachers and materials. Schools are provided funding for one teacher for every 18 students, although the program will consider funding a position if there are fewer students.[1] Teacher pay is funded at an average estimated cost of $42 per hour for four hours per day over six weeks for third- and sixth-grade teachers (individual teacher pay varies by years of experience, years of education, etc.). Eighth-grade teachers are paid for 4.5 hours per day over seven weeks. Teachers are also paid for 12 hours of professional development. Thus, the average third- or sixth-grade Summer Bridge teacher is paid $5,544 for teaching in the program, and the average eighth-grade teacher earns approximately $7,119. If there are an average of 16 students per class, then the cost of a Summer Bridge teacher is approximately $347 per student in the third and sixth grades and $445 in the eighth grade. The Chicago Public Schools (CPS) Office of Schools and Regions provided an estimate of the costs of curricula, materials, and supplies per student.[2] On average, between 1997 and 2000, the cost of all materials for Summer Bridge was $136 per student for third and sixth graders and $171 for eighth graders. Using these data, we can estimate that the average cost per student for Summer Bridge teachers and materials was around $528. At the high end, adding costs for administration and operations would increase the cost of the program by approximately $100 to $628 per student.

2. Administration. Schools are funded for administrative support for Summer Bridge based on the size of all summer programming in that school. If a school has six to 12 classrooms in summer, one teacher is paid for two hours of administrative work per week. If there are over 12 classrooms, that school receives funding to pay one teacher as a summer administrator. In addition, schools receive $2,500 per summer to fund secretarial needs regardless of whether or not they have a Summer Bridge program. There are approximately 48 regular CPS teachers hired each year as monitors or coaches for the program. They work six hours per day for eight weeks at a total cost of approximately $500,000. In addition, teacher training for Summer Bridge costs about $1 million per year. Also, high school and college students who are hired as Summer Bridge tutors are paid approximately $10 per hour.

3. Operations. Additional costs for Summer Bridge include funds for security and transportation. Security costs total approximately $200,000 per summer. In its first two years, transportation for Summer Bridge cost approximately $1 million per summer. However, in 1998, CPS instituted a policy requiring most students to attend their neighborhood schools for Summer Bridge, reducing transportation costs to about $200,000.

All of the costs listed above are directly related to running Summer Bridge and do not include indirect costs that come with keeping the school buildings open during summer (e.g., utility costs such as air conditioning), the cost of administering the Iowa Tests of Basic Skills during the program, and the cost of initially planning and staffing the program, which includes identifying students who need to attend and informing students and parents.

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[1] CPS decides whether or not a school will have Summer Bridge based on the number of students who need to attend within each grade in the school. For example, if one school's third grade has approximately zero to six students who need to attend Summer Bridge, that grade will not have a program. If there are seven to 12 students who need to attend, then CPS will consider funding Summer Bridge for that school's third grade (taking into account whether the school has Summer Bridge in other grades, how easily students could be clustered in another school, etc.). If there are 13 or more students who need to attend, the school will have a program for that grade. Students who need to attend Summer Bridge but whose schools do not offer a program are sent to nearby schools.

[2] Estimates of Summer Bridge costs were obtained from the CPS Office of Schools and Regions through an interview with William McGowan, Director of Schools and Regions, conducted in spring 2002.

in the fourth through eighth grades.[7] In addition, about half of Summer Bridge teachers responding to the 1999 survey reported having tutors available to assist with instruction.

An important characteristic of Summer Bridge is that, whenever possible, teachers in the program are regular CPS classroom teachers who are paid at union rates over the summer. Principals are responsible for recruiting teachers for the program. We know little, however, about what might be the most effective method of staffing programs like Summer Bridge. On the one hand, students may benefit from the continuity of having the same teacher during the school year and the summer—a teacher who knows them and is familiar with their behavior and learning needs. On the other hand, students may benefit from a fresh start with a new teacher, particularly if they did not experience great success with their teacher during the school year.

Our 1999 survey of Summer Bridge teachers allowed us to examine how principals staffed Summer Bridge classrooms. In 1999, 87 percent of third- and sixth-grade teachers reported teaching Summer Bridge in the same school in which they taught during the school year (see Figure 1-8). In addition, over 80 percent of Summer Bridge teachers were regular classroom reading and/or mathematics teachers during the year.

Although most Summer Bridge teachers were regular classroom teachers working in their regular schools, they were less likely to be teaching Summer Bridge in the grade they taught the previous year. Of the three Summer Bridge grades, eighth-grade students were the most likely to be taught by eighth-grade teachers. Over half (54 percent) of eighth-grade Summer Bridge teachers reported that they taught eighth grade during the previous school year (see Figure 1-9). However, only about one-third of third- and sixth-grade Summer Bridge teachers (36 percent and 31 percent, respectively) reported teaching that grade the previous year. Most third-grade teachers were drawn from the primary grades (57 percent came from second through fourth). Similarly, sixth-grade teachers were drawn primarily from the fifth through eighth grades (67 per-

FIGURE 1-8

The Majority of Summer Bridge Teachers Taught Reading and/or Mathematics during the School Year and Taught in the Same School

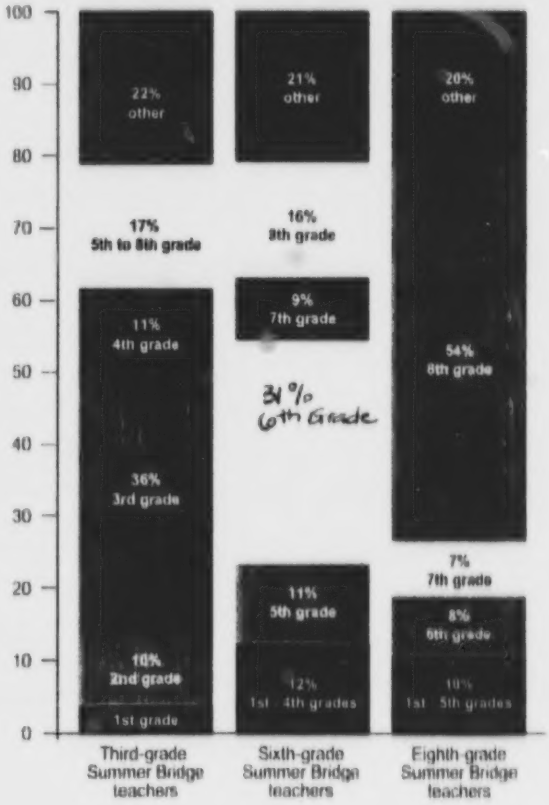
	Third	Sixth	Eighth
Taught in:			
Same school as school year	87%	87%	83%
Different school from school year	13%	13%	17%
Subject taught during school year:			
Reading and mathematics	74%	61%	46%
Reading only	8%	15%	23%
Mathematics only	2%	5%	10%
Science/social studies only	1%	4%	8%
Other subject	7%	9%	7%
Did not teach	8%	6%	7%

These figures are based on teacher reports on the 1999 Summer Bridge survey

FIGURE 1-9

One-Third to One-Half of Summer Bridge Teachers Taught in the Same Grade during the School Year

Based on the 1999 Summer Bridge Teacher Survey



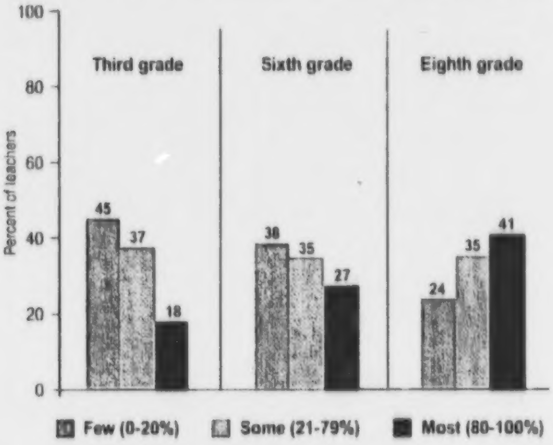
cent). It is possible that the smaller proportion of third-grade teachers we found teaching third-grade Summer Bridge may be due to there being many more third-grade students in the program and principals may have had difficulty recruiting enough third-grade teachers for the available positions in that grade. Also, principals, out of concern about content knowledge or classroom management, may place more emphasis on recruiting same-grade teachers in the eighth grade than in the third or sixth grades.

The fact that fewer third- and sixth-grade teachers taught Summer Bridge in the same grade that they taught the previous year meant that teachers in these grades were much less likely to know their students. The 1999 Summer Bridge teacher survey asked teachers to report the number of students that they knew previously. The average third-grade teacher reported knowing only 36 percent of her Summer Bridge students, compared with sixth-grade teachers knowing 43 percent, and eighth-grade teachers knowing over half (54 percent). Over twice as many eighth-grade teachers than third-grade teachers (41 percent compared to 18 percent) reported knowing almost all (80 to 100 percent) of their students before Summer Bridge (see Figure 1-10). In Chapter 5, we examine how these differences in staffing characteristics—whether teachers taught in the same school and in the same subject, and the percentage of the students they knew before the summer—are associated with student outcomes.

Over twice as many eighth-grade teachers than third-grade teachers (41 percent compared to 18 percent) reported knowing almost all (80 to 100 percent) of their students before Summer Bridge.

FIGURE 1-10

Eighth-Grade Summer Bridge Teachers Knew More of Their Students Than Third- and Sixth-Grade Teachers



Percentage of students known before Summer Bridge, based on the 1999 Summer Bridge teacher survey.

The Summer Bridge Curriculum

Instructional Foci

As its name suggests, the Iowa Tests of Basic Skills, or ITBS, is a basic skills test. The reading portion of the ITBS focuses on testing reading comprehension skills in three areas: factual meaning, inferential and interpretative meaning (e.g., drawing conclusions or inferring the traits or feelings of a character), and evaluative meaning (e.g., identifying the main idea of a paragraph). The mathematics portion of the ITBS covers problem-solving skills, data interpretation, and mathematical computation. The Summer Bridge curriculum was designed so that the instructional emphasis is approximately proportional to the emphasis of those topics on the ITBS. This does not vary substantially from grade to grade, as is illustrated in a comparison across third- and eighth-grade reading. At each grade level, the percentage of time devoted to topic areas in the Summer Bridge curriculum roughly corresponds to the percentage of questions in that topic area on the ITBS. Figure 1-11 demonstrates this by comparing the percentage of questions on the ITBS (as

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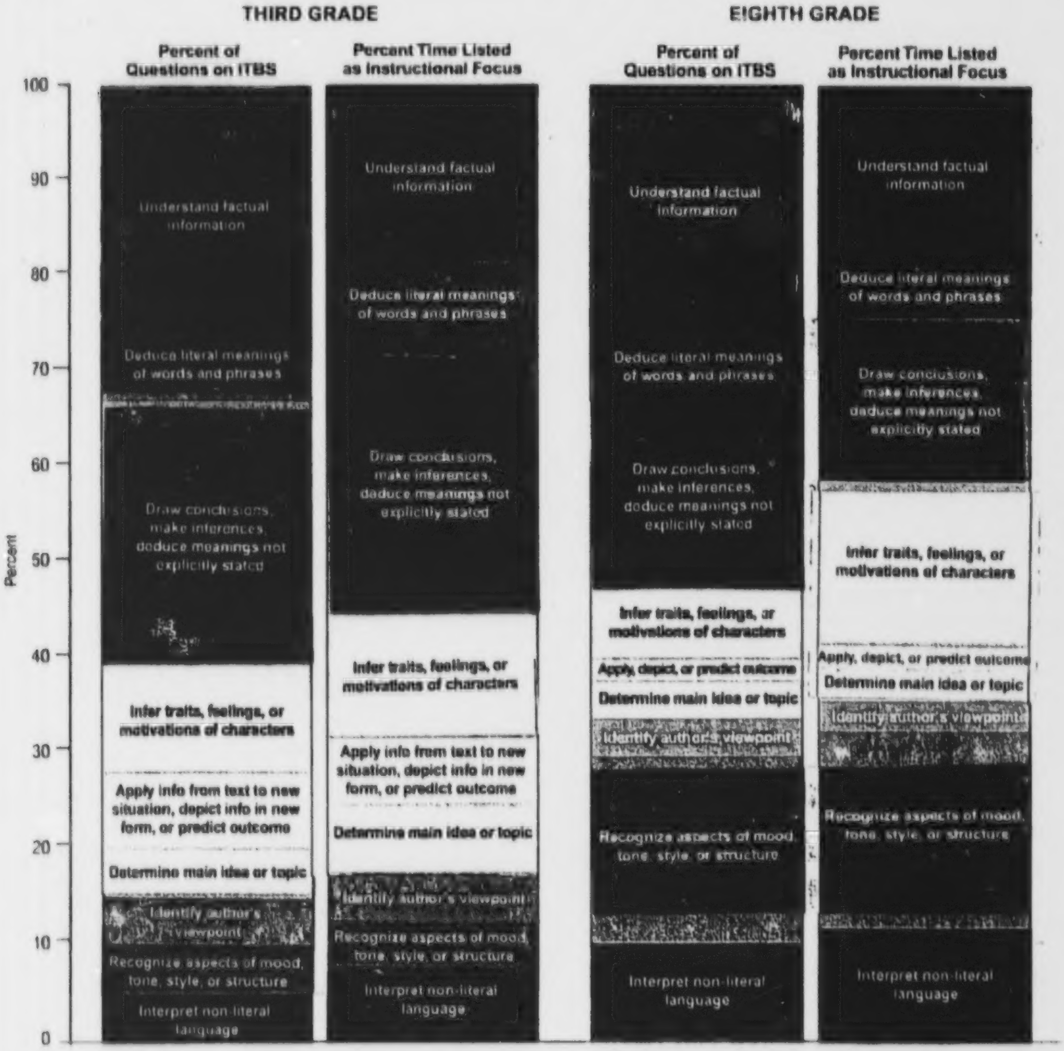
FIGURE 1-11

Instructional Foci from the Summer Bridge Reading Curriculum



Analysis was conducted on the 1999 Summer Bridge curriculum. For reading, we report the breakdown of questions on the ITBS as provided in the Summer Bridge Curriculum. For math, we referred to the booklet titled "Iowa Tests of Basic Skills: Content Classifications with Item Norms." Percent time listed as instructional focus was obtained from a count of the proportion of days in which the focus is listed. When there were multiple foci, a weighted average was calculated. See Appendix A for sixth-grade reading and third-, sixth-, and eighth-grade mathematics instructional foci.

reported in the Summer Bridge curriculum) in each topic area and the percentage of time that topic area was listed as a core instructional focus of a day's lesson.[8]

The reading curriculum in Summer Bridge relies upon a series of readings, text and skill books, and classroom libraries. The curriculum does not, in general, introduce skills as discrete topics. Rather, it develops a set of reading comprehension concepts (main idea, inference) and skills by repeatedly using a variety of reading materials over the course of the summer. For example, students are expected to apply the skills needed to infer the traits, feelings, or motivation of characters to virtually every story they read. Figures 1-12a through 1-12c provide examples of typical lesson plans from the Summer Bridge reading curriculum (see Appendix B for examples of daily mathematics lesson plans). One lesson was selected from each of the three grades, and days with similar instructional foci were chosen.[9]

The Summer Bridge curriculum is described as being at "grade level" because it focuses on the skills tested on the ITBS for each respective grade. However, as seen in Figure 1-11, and in Appendix A, the instructional foci do not change dramatically across grade levels. Nonetheless, there are two ways that the Summer Bridge curriculum does differ across the three grades: differences in the complexity and difficulty of the texts and problems to which students are applying concepts, and differences in the level at which students are applying each reading and mathematics concept. For example, in reading, students are asked to apply similar concepts to "grade level" reading material in all three grades, but both the variety and complexity of the materials used increase across grades. The third-grade reading curriculum uses both the smallest number and variety of materials. In the third grade, almost all of the students' reading materials are brief stories that are linked to a central theme, such as courage. Third graders are also exposed to several poems and one article. In sixth grade, readings include a number of short stories, passages that are more informational in nature, and several articles. In the eighth-grade curriculum, students read the broadest range of materials, including several stories, a novel of students' choice, a number of poems, and a number of articles.

Instructional foci are also intended to be applied "at grade level," and thus in a more challenging way in the sixth and eighth grades than in the third. Students in higher grades are asked to interpret texts in more sophisticated ways. For example, in applying the concept of identifying the author's viewpoint, third-grade students receive instruction on specific subjects, including identifying the narrator of a story, defining a point of view, considering their own points of view, and describing a narrator's identity and attitude. The eighth-grade curriculum specifies instruction that includes practice in identifying different points of view, acknowledging and understanding that authors manipulate their readers, and instruction on the fact that the tone of a narrative can influence readers.

Each lesson of the Summer Bridge reading curriculum is divided into a teacher-directed activity, tutorial/skills development, and homework. The teacher-directed activity is the primary time when instruction takes place. The curriculum designates 50 minutes to teacher-directed activities and 50 minutes to tutorial/skills development. Ten minutes are devoted to homework instruction. Teachers are given wide flexibility in how to organize the teacher-directed activity and, as we will see in Chapter 5, teachers enact the Summer Bridge curriculum in a wide variety of ways, providing instruction that ranges from highly individualized and targeted, to meeting individual students' needs, to simply following the curriculum verbally.

The tutorial/skills development activities provide structured directions to teachers regarding which materials to use. Despite several exceptions in which students were asked to write a paragraph or construct a piece of their own work, most of the tutorial/skills development activities were devoted to reading short passages and doing multiple choice exercises such as working out of workbooks or using SRA materials.

To summarize, the primary focus of the Summer Bridge reading curriculum is on developing reading

FIGURE 1-12A

Lesson: 16

Sample Daily Lesson Plan from the Summer Bridge Curriculum, 1999
Third Grade Reading

Instructional Focus

Draw conclusions, make inferences, deduce meanings not explicitly stated in text.

Teacher-Directed Activity

Check and review homework. Place the instructional focus on the chalkboard and briefly discuss with the students. Invite the students to help set a purpose for reading the story.

Ask: What do you think we could find out if we read the story? Record their responses to this question and suggest that they locate the specified information. Turn to page T416. Help the students formulate strategies to find out the problem Maria Isabel is having at school. Ask the students to list the reasons the author gives for Maria's problem. Have the class form cooperative groups of three or four and brainstorm other ways Maria could have informed her parents of her problem at school. Invite the class to read these pages orally in their small groups. Encourage the students to tell what they notice about each other's reading. Ask students the informal assessment question under "Drawing Conclusions" on p. T419. Use the Teach/Model graphics to help the students think about story evidence and what they already know. Explore the meaning of story evidence with the students so that they will be able to find support for their answers.

Tutorial/Skill Development

Distribute SRAs. Tell the students that today's listening activity is a story from Greece. Continue with the introduction and listening story, following the teacher's edition, pp. 37-43.

Homework

Assign "Bird Lady" from Focus on Reading. Have the students view the photographs and speculate on what the title infers. Read p. 70 to draw the class into the story. Direct the students to complete the story and the activities on pp. 72-73.

Source: Chicago Public Schools 1999 Summer Bridge Teacher Handbook, Grade 3. The lesson has been condensed.

FIGURE 1-12B

Lesson: 16

Sample Daily Lesson Plan from the Summer Bridge Curriculum, 1999
Sixth Grade Reading

Instructional Focus

Draw conclusions. Apply information from text to new situation; depict information in new form. Deduce meanings not explicitly stated in text.

Teacher-Directed Activity

Review and discuss homework assignment from the previous day. Place the instructional focus on the chalkboard and discuss briefly with the students. Explain to the students that when they create something—a report or a painting—or make a decision for drawing a conclusion about something, they combine information that they have learned from outside sources with their own knowledge and experience. Have the students reread the first paragraph on p. 478. Discuss how Margaret had to gather and combine information from different sources. Model the lesson T1004 with the students. Draw on the chalkboard the diagram found on p. R59 and discuss with the class. Have the students look at the photograph *Basket of Light* on p. 485. use the question found in the visual/spatial model on p. R59 (to reinforce the process for gathering and combining information to reach a conclusion).

Tutorial/Skill Development

Assign *Focus on Reading*, pp. 58-61, to students who need further practice in the focus skill for the day, drawing conclusions. Work through the exercises with students while monitoring their progress.

Use the SRA Reading Laboratory 2c to provide further development in reading comprehension. Power Builders at the appropriate color should be inserted in the students' record books in advance. Check students' booklets for progress.

Homework

Assign *Signatures Practice Book*, p. 144. Explain the activity to ensure understanding. Go over the exercise together.

Source: Chicago Public Schools 1999 Summer Bridge Teacher Handbook, Grade 6. The lesson has been condensed.

comprehension skills rather than teaching more basic reading skills such as decoding. The Summer Bridge mathematics curriculum is focused on problem solving, data interpretation, and computation, providing instruction both in the application of basic mathematics computation skills and in analysis and estimation.

What does it mean to say that the Summer Bridge curriculum is "test prep"? An important question is whether test-score increases that occur after the introduction of high-stakes testing reflect real achievement gains. These concerns are relevant when evaluating programs like Summer Bridge because the primary purpose of the program is to prepare students to raise their scores on a particular test. Test preparation can occur in several ways. The first way, which we term "content alignment," occurs when students are taught specific material that will be on the test. A second way, which is also the most direct, occurs when teachers spend time teaching students strategies for answering questions and giving practice tests. And, a third approach, referred to as "assessment alignment," occurs when students are asked questions or assessed in ways that give them practice in the particular form in which the test assesses knowledge. For example, the ITBS is a multiple-choice test. Students might, in general, be able to express the main idea of a paragraph but would be more likely to get that answer right if they practice translating that knowledge into a correct answer in a multiple-choice format. Each of these techniques—content alignment, test strategies, and assessment alignment—would likely lead students to get higher scores on one particular test because they are taught what is on *that test* in ways that the test measures performance.

The close alignment between the ITBS and the Summer Bridge curriculum means that the Summer Bridge curriculum can be characterized as test preparatory because students are being taught the specific skills on which they will be tested. The extent to which instruction in Summer Bridge also emphasizes direct test-taking strategies is less clear. The material for Summer Bridge includes the *Test Best* book, the test preparation manual that accompanies the ITBS. And, the teacher's handbook for the

FIGURE 1-12C

Lesson: 10

Sample Daily Lesson Plan from the Summer Bridge Curriculum, 1999
Eighth Grade Reading

Instructional Focus

Draw conclusions. Make inferences. Deduce the meanings that are not explicitly stated in the text.

Teacher-Directed Activity

Review homework. Place the instructional focus on the chalkboard and discuss briefly. Invite students to share their plot summaries with the class, explain their poster designs, or read their letters written to one of the characters from the story. Display the best student work in the classroom. Encourage the class to discuss whether the homework directions were followed.

Have volunteers share a recent incident that they can recall which involved drawing a conclusion. Encourage ideas by saying, "If you see two people greet each other with smiles and a handshake, you will readily conclude that they are friends or they are happy to see each other." Listen to the examples and discuss. Introduce the assigned selection by reading orally and discussing the background information on p. 73 of *Be a Better Reader* in order to maximize comprehension. Preview the selection by studying the graphs and their interpretation. Read the tan boxes and discuss meaning that is not in the text.

Allow students time to read silently the selection, "Trends in the Work Force: 1940's-1950's," pp. 73-75. Elicit volunteers to read passages orally in order to check for comprehension and word punctuation. Do "Interpreting Facts," pp. 75 and 76, as group exercises, discussing responses for each question before moving on to the next. Note areas of difficulty for further skill development. Have students answer selected questions from "Skill Focus" and "Real Life Connections," pp. 76 and 77.

Tutorial/Skill Development

Prepare the SRA Reading lab 3a assignment for each student. Insert the Power Builder at the appropriate level (brown or tan) in the Student Record Book. After the Student Record Books containing Power Builders have been passed out, ask students to turn to p. 21; follow the directions on p. 33 of the Teacher's Handbook.

Homework

Instruct students to turn to p. 147 in *Be a Better Reader*. Explain to students that pp. 147-149 will reinforce their skills in using a dictionary. Students should have time to preview the lesson so questions can be answered. The pages should be completed for homework.

Source: Chicago Public Schools 1999 Summer Bridge Teacher Handbook, Grade 8. This lesson has been condensed.

Is Summer Bridge Just Test Prep?

One of the first questions that inevitably arises about intensive academic programs linked to high-stakes testing is: Is it all just test prep? We note that test preparation can be defined in several ways, including teaching students strategies for answering questions on standardized tests, teaching students material that will be covered on the test, and having students practice skills in the format in which they will be tested (e.g., practice tests, and multiple-choice exercises). We found very little evidence of the first type of test preparation in Summer Bridge. In all grades and in both reading and mathematics, teachers spent less than 1 percent of their time explicitly teaching students test preparation strategies, coaching them on taking the Iowa Tests of Basic Skills (ITBS), and giving them advice on how to take the test.

On the other hand, almost all of the content taught in Summer Bridge is material that is covered on the ITBS. Given that the goal of Summer Bridge is to provide students with an opportunity to gain skills that will increase their test scores, the fact that the content is highly aligned with the ITBS and that the vast majority of teachers taught that content during lessons is to be expected. Finally, many of the materials used in Summer Bridge (e.g., SRA) are constructed in a multiple-choice format. Often, when students were engaged in skills practice, they were reading paragraphs and answering multiple-choice questions or solving basic math problems. Also, we found that in our sample of classroom observations, teachers spent about 4 percent of class time having students take tests or quizzes (see Chapter 5 for further details and Appendix I about methodology.) This includes taking practice tests using books like *Test Best*, a practice test book geared towards the ITBS. So, although we saw very little explicit coaching or teacher practice geared toward helping students learn strategies for taking the test (for example, process of elimination for multiple-choice questions), the entire program was definitely geared towards teaching students both the content and the skills tested on the ITBS.

reading curriculum specifically notes that "during their regular lessons, whenever possible, teachers should incorporate the test question prompts which are included in the test-preparation booklet."[10] At the same time, day-to-day lesson plans in reading place little emphasis on traditional test preparation activities such as taking practice tests, working in test practice books designed to teach test-taking strategies, or drilling on the specific method of answering questions on a particular test. The *Test Best* book is primarily for skills practice and is used on only three to four days in the third-, sixth-, and eighth-grade reading curricula.

The mathematics curriculum places much more emphasis on direct test preparation. In the sixth and eighth grades, the mathematics curriculum provides one day a week of explicit test preparation, usually on Fridays, where, according to the Teacher's Handbook, "students in grades six and eight will be taught test-taking skills, using an approach that includes teacher-directed instruction, guided practice, and independent practice." In third grade, test preparation occurs as an explicit instructional focus on approximately eight days, and a test preparation activity is often included as an additional skills activity for the end of the day. Finally, the materials and texts used for Summer Bridge do reflect an emphasis on assessment, particularly multiple-choice questions (such as use of SRA cards and multiple-choice exercises at the end of the chapters in the reading curriculum).

Summary

The goal of this chapter was to describe the essential elements of Summer Bridge, both to understand the findings in the chapters that follow and to provide data for generalizing those results. This chapter focused on identifying critical characteristics of Summer Bridge students and the program itself that are relevant for interpreting findings in subsequent chapters. Here we summarize what we think are the most important findings in this chapter.

First, the Summer Bridge program is a large summer program serving urban and predominantly minority students. In the third grade, Summer Bridge students are predominantly African-American, and in sixth and eighth grades, they are predominantly Latino and African-American. Students who attended the program performed substantially below grade level on both the promotional grade's test and the previous year's test. Over the course of this study, students who attended Summer Bridge did so primarily because of low reading scores.

Second, a critical question is the extent to which students are self-selecting into summer programs and whether the programs are serving only the most motivated students. We addressed this issue by examining how many students who were required to attend Summer Bridge were tested at the end of the summer. We found that, at over 80 percent, testing rates in the program were relatively high. When we excluded students who might not have attended Summer Bridge because they left the school system, were promoted, or placed in special education the next year, testing rates were over 90 percent. These testing rates are impressive for such a large summer program. They highlight both the importance placed on the program by the schools and the system, and the extent to which the threat of non-promotion may have increased participation. Testing rates at the end of the summer do not tell us about student attendance from day to day, but they do suggest that Summer Bridge results can be generalized to more than just a small proportion of motivated students.

An important component of Summer Bridge is that most students attend the same school for Summer Bridge as they did during the school year and are taught by a CPS teacher from their home school. For the most part, these aspects of Summer Bridge were maintained over the program's first four years. Even after the system decided not to provide transportation for students, over 80 percent of Summer Bridge students attended the same school as during the school year. At the same time, most Summer Bridge teachers, with the exception of eighth grade, were not teaching in the grade they taught during the school year. This meant that most Summer Bridge teachers did not know a high proportion of their students prior to the summer.

Third, a central component of Summer Bridge is small class size. Schools are provided one classroom teacher for every 18 students, and teacher reports suggest that actual class sizes are slightly lower, on average 16 students. These reported class sizes would make the average Summer Bridge class size substantially smaller than what students and teachers experience during the school year.

Fourth, a critical component of Summer Bridge is the mandatory, centrally developed curriculum. The reading curriculum in Summer Bridge focuses on building students' reading comprehension skills as they are measured on the ITBS. The mathematics curriculum focuses on data analysis, estimation, and basic mathematics concepts. Finally, the Summer Bridge curriculum is designed to raise student achievement scores on the ITBS by providing them more practice, instruction, and exposure to the specific sets of skills that will be tested on the ITBS. In this respect, the Summer Bridge curriculum can be characterized as test preparatory. The reading curriculum gives much more emphasis to building more general reading comprehension skills than to teaching test-taking strategies or providing practice tests. The mathematics curriculum, however, is much more test focused and gives attention to direct test preparation and practice activities.

In conclusion, Summer Bridge is a large and ambitious program directing extensive resources to the system's lowest performing students. In the following chapters, we examine the impact of this effort by answering these key questions: Are there learning gains in Summer Bridge? What are students' and teachers' perspectives about the program? And, how do students describe their experiences in the program?

John Booz

CHAPTER 2

Learning Gains and Passing Rates

The goal of Summer Bridge is to provide students who do not meet the promotional cutoffs at the end of the school year with extra support and a second opportunity to be promoted. This chapter takes an in-depth look at the short-term effectiveness of Summer Bridge.[1] Do students raise their test scores over the summer? And, are test-score gains large enough for students to be promoted to the next grade? We begin by examining the average effects of Summer Bridge in the first four years of the program (1997-2000). We then examine two critical issues that arise in the use of summer interventions under high-stakes testing. First, is Summer Bridge more effective for some students than for others, and, in particular, how do program outcomes differ for students with very low test scores compared to those who are closest to the promotional cutoffs? And, second, to what extent might summer programs simply exacerbate existing differences in school quality—do students in higher-performing schools benefit more than students in schools that are lower performing?

Estimating Test-Score Gains in Summer Bridge: Adjusted Increases for 1997-2000

The simplest method of estimating test-score increases over the summer is to subtract a student's score at the end of the school year from her summer test score. This is the method that the school system uses when it reports test-score gains in Summer Bridge. The problem, however, is that because students are selected for the program on the basis of one test score, some will be required to attend because they had a bad testing day. To reduce the influence of random fluctuations in students' test scores, we use a student's entire test-score history to predict spring scores and then subtract this predicted spring score from her observed summer score. We call this estimate of the effect of Summer Bridge the ***adjusted Summer Bridge gain***. This analysis is restricted to students who were first-time Summer Bridge participants, who were not retained the prior year, and who had to pass that portion of the test (reading or mathematics) to be promoted.[2]

How important is adjusting students' test-score increases in Summer Bridge for regression to the mean? A comparison of observed and adjusted gains confirms that a simple comparison of spring and summer test scores would lead to substantial overestimates of improvement on the ITBS in Summer Bridge. In 1997, for example, eighth graders who attended Summer Bridge increased their reading test scores by about a year (ten months) in the seven-week program (see Figure 2-1). This is the estimate we would obtain by simply subtracting observed summer test scores from observed spring test scores. Our adjusted estimate, which accounts for the fact that many of these students had below-average test performance in spring, is 6.5 months (0.65 GEs). Although this is substantially lower than the observed gain, it is still very large. In fact, even after adjusting summer test-score gains for abnormally low spring test scores, estimates of test-score gains in the program are substantial and relatively consistent across the first three years. This was particularly true in the sixth and eighth grades. In the sixth grade, adjusted ITBS score increases in reading ranged from a low of 3.1 months in 1998 to a high of 4.3 months in 1999 (see Figure 2-2a). Test-score gains were largest in the eighth grade. Between 1997 and 1999, the average eighth-grade Summer Bridge

Estimating Student Test-Score Increases in Summer Bridge

A central focus of this chapter is to address the question of how much students' test scores increase during Summer Bridge. If the program were effective, one would expect students' test scores to improve between spring and the end of summer. This suggests that one might simply examine the change in test scores from spring to summer as an indicator of summer school learning. The problem with a simple comparison of scores is that students are selected for Summer Bridge by scoring below a specific cutoff. On any standardized test, there is considerable variation in student performance that is not related to students' "true" achievement level. For example, one student might be sick on a testing day or may accidentally miscode the answer key. Another may have a particularly good testing day or guess correctly on a question or two. This means that given two students with the same underlying achievement levels, the one who has a bad testing day will be more likely to attend summer school. When this student is retested at the end of the summer, her score will likely increase simply due to chance even if the program had no impact. This *regression to the mean* artificially inflates summer school learning gains.

In this chapter, we correct for the problem of regression to the mean by using a student's learning gains over the course of his entire test-score history to obtain a predicted spring test score. We obtain this predicted pre-Summer Bridge test score by estimating a student growth model using a hierarchical linear model, or HLM (see Appendix C for a detailed description). This model uses a student's entire testing history and the learning trends of students in both pre- (1992-1996) and post-policy (1997-2000) cohorts. It is estimated separately for each grade (third, sixth, and eighth) and for each subject (reading and mathematics). The outcome variable is the student's test score in each year in that subject on the Iowa Tests of Basic Skills (ITBS) measured in the grade equivalent (GE) metric.

This procedure can be illustrated for a sixth-grade student: In May of sixth grade, this student had a very low test score on the ITBS. Her score was low both because she was a low-achieving student across her school career and because she had a bad testing day. If we use her prior test-score history to predict what her sixth-grade test score should have been given her prior

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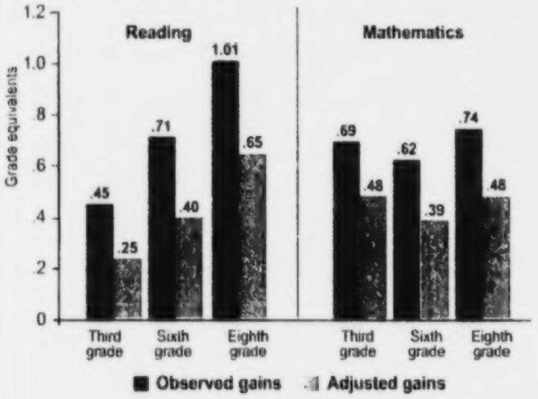
FIGURE 2-1

Adjusted Test Score Gains Are Large, but Smaller Than Observed Gains

1997 Observed and Adjusted Test-Score Gains in Summer Bridge



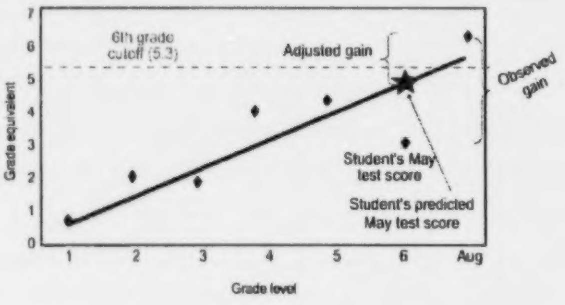
student increased her ITBS reading scores, using the adjusted measure, by over six months. In the year 2000, adjusted Summer Bridge test-score gains declined in reading for eighth graders and for every grade in mathematics (see Figure 2-2b). In the previous chapter, we also found that spring passing rates declined in 2000, particularly in the eighth grade.[3] Thus, not only did the students in these grades have poorer school year outcomes, but their Summer Bridge outcomes were also worse.

In general, however, adjusted gains suggest that sixth and eighth graders who attended Summer Bridge experienced substantial test-score increases over the summer. Across the first four years of the program, the average sixth grader who attended Summer Bridge and needed to pass that subject increased her test scores by almost four months (0.39 GEs) in reading and three

trend, we see that she still increased her test score in the summer, though not nearly as much as we would estimate using her observed gain. We call this an *adjusted gain.* Using this methodology requires that we restrict analysis to students for whom we have test scores prior to the promotional gate grade. This means that the analysis excludes students who are new to testing.

A similar problem occurs when we try to compare summer gains to school year gains. The simplest method would be to compare learning gains in summer to the gain that students made during the prior school year (for example, a student's spring to summer gain against the prior year's fall to spring gain). This is problematic for two reasons. First, if summer school students are those who, by definition, scored particularly low in spring of the prior year (given their "true" ability), the above method would artificially deflate the school year gains. Second, if the new promotional policy encourages students and teachers to work harder during the academic year, achievement gains during the promotional gate year will likely be larger than in the previous year. To address these problems, we also use students' estimated annual learning gains across their entire test-score history, obtained from the growth curve model, to measure the typical school year gains of students who attended Summer Bridge.

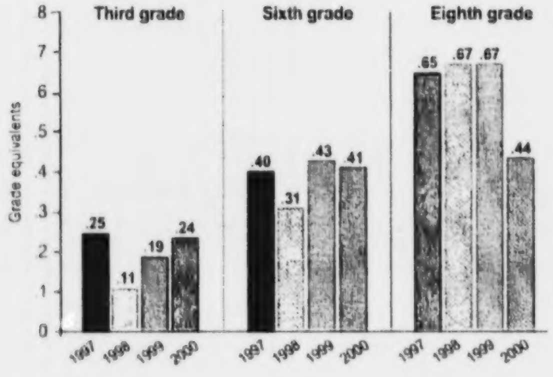
Correcting for Regression to the Mean in Estimating Summer Bridge Test-Score Increases: An Illustration of a Sixth-Grade Student



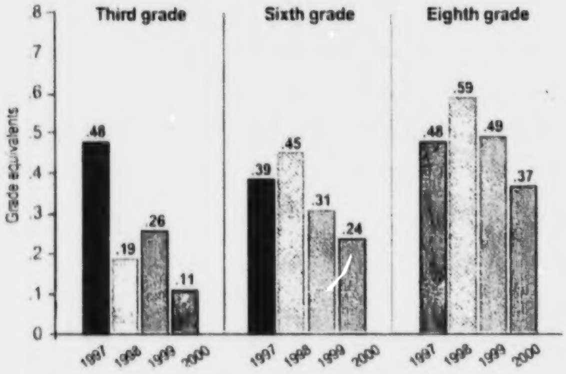
FIGURES 2-2A AND B

Adjusted Summer Bridge Test-Score Gains

Reading, 1997 to 2000



Mathematics, 1997 to 2000



and a half months (0.36 GEs) in mathematics (see Figure 2-3). Eighth graders, on average, increased their ITBS test scores by approximately six months in reading (0.59) and nearly five months (0.48) in mathematics across the four years. Adjusted gains were smaller among third graders in both reading and mathematics. Combining effects across years, adjusted gains for third graders were approximately two months in reading and three months (0.29) in mathematics.

Summer Bridge Is Effective when Compared to a National Review of Other Summer Programs

Given the length of Summer Bridge, these adjusted test-score increases appear quite large. An increase of four months in reading for a program that lasts one and one-half months is impressive. It is hard to interpret these results without a comparison, however. One approach is to compare Summer Bridge results to estimated test-score increases in other summer programs.

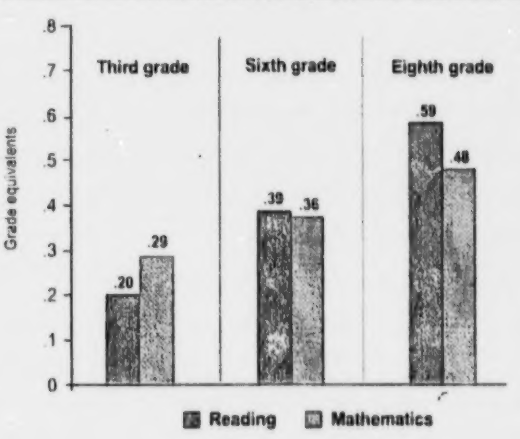
Harris Cooper and his colleagues at the University of Missouri recently conducted an extensive review of summer programs.[4] In order to compare test-score gains across summer programs that use different tests to measure student progress, they reported test-score gains in "effect sizes." The effect size converts the achievement gain in the program into a scale based on the standard deviation of a one-year gain on that particular test.[5] Effects sizes allow for direct comparison of summer program gains across different achievement tests.

Cooper and his colleagues estimated that students in remedial summer programs generally increase their test scores by 0.25 standard deviations (or by an effect size of 0.25).[6] Test-score gains in reading, however, tend to be smaller than in mathematics. They found an average effect size of 0.24 in reading, with a margin of error of 0.02 in either direction, and 0.27 in mathematics, with a margin or error of 0.03 in either direction. They also found that remedial summer program effects tend to be larger for younger students than for students in the middle grades.

FIGURE 2-3

Eighth Graders Had the Largest Summer Bridge Test-Score Gains in Reading and Mathematics

Average Adjusted Test-Score Gains 1997-2000



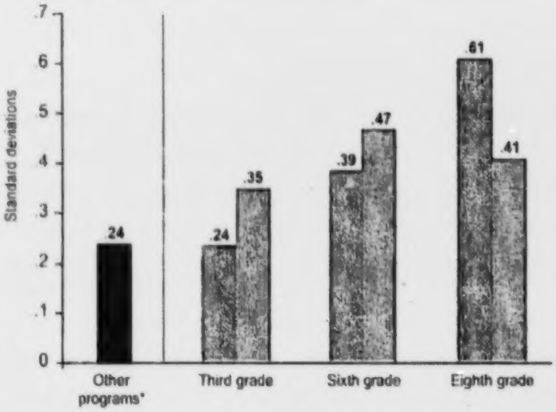
In order to compare the results of Summer Bridge to the findings of Cooper and his colleagues, we converted the estimated adjusted ITBS gains in Summer Bridge to effect sizes using the standard deviation of test scores on the ITBS.[7] Because adjusted Summer Bridge learning gains differed in 2000 from prior years, we show effect sizes for 2000 separately from those for the first three years of the program (1997-99, see Figure 2-4a). The 1997-99 adjusted Summer Bridge reading test-score gain for eighth graders in 2000 is approximately four and a half months (0.44 GEs). Dividing this by the average of the standard deviation of ITBS scores for students in Summer Bridge, the 0.44 GE increase translates into a 0.41 standard deviation increase on the ITBS reading test.

In the third grade, average effect sizes between 1997 and 1999 in Summer Bridge are comparable to those found in other programs in reading and larger than other programs in math (see Figure 2-4b). In the sixth and eighth grades, Summer Bridge effect sizes were significantly larger than those found in other programs. In the eighth grade, Chicago's Summer Bridge program produced average effect sizes that were twice that of other remedial summer programs.

FIGURES 2-4A AND B

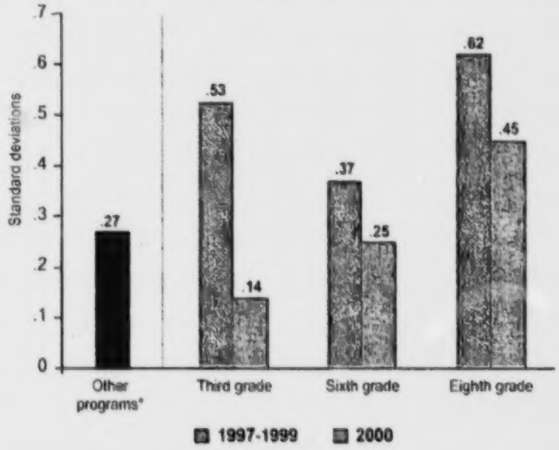
Summer Bridge Had a Greater Effect in Sixth and Eighth Grade Than Other Summer Programs

Reading Gains, 1997-1999 and 2000



* Effect size for "other programs" from Cooper et al. (2000), page 71.
The 95% confidence interval for this effect size is 0.22 to 0.26.

Mathematics Gains, 1997-1999 and 2000



The 95% confidence interval for this effect size is 0.24 to 0.30.

Test-Score Increases in Summer Bridge Versus the School Year: The Relative Efficiency of Summer Bridge

A second way to understand the magnitude of the test-score increases in Summer Bridge is to ask: How large were students' ITBS test-score gains in Summer Bridge compared to their gains during the 37 weeks of the prior school year?

There are six weeks of summer school for third and sixth graders and seven weeks for eighth graders. There are also approximately six weeks between the administration of the spring ITBS and the end of the school year. If we assume that half of this period was dedicated to instruction, then third-grade students

What Does Other Research Find on the Effects of Summer School?

In *Making the Most of Summer School: A Meta-Analytic and Narrative Review* (2000), Harris Cooper, Kelly Charlton, Jeff Valentine, and Laura Muhlenbruck explored the effects of summer school based on a review of 54 evaluations of summer school programs, 39 of which looked at academic outcomes. The research restricted analysis to programs that were run during the summer by a school district or university and had the goal of providing academic support or remediation for students. The central findings of their analysis are the following:

Remedial summer school programs focused on lessening or removing learning deficiencies have a positive impact on student achievement. Cooper and his colleagues estimated that students in these programs, on average, perform about one-fifth of a standard deviation higher (0.20 standard deviations) than control groups. These effects range from between one-seventh to one-quarter of a standard deviation on outcome measures.

Summer programs have more positive effects on the achievement of middle-class students than students from disadvantaged backgrounds. The authors found that studies looking at the effects of summer school on the achievement of students from middle-class families demonstrated effect sizes approximately twice as large as those for students from disadvantaged families. One hypothesis for this effect is that summer programs in middle-class school districts might have more resources, such as smaller class size or more structured programs. Another hypothesis is that disadvantaged students and students in more disadvantaged school districts face greater obstacles to learning.

Remedial summer programs have larger effects when run in a small number of schools or in smaller communities. The analysis finds that large summer programs may be more difficult to mount and run effectively, may have less quality control, and may give teachers and schools less ability to plan and tailor the program. At the same time, large programs tend to be run in more disadvantaged school districts and, thus, this finding may reflect the fact that large summer pro-

who attended Summer Bridge would have had about nine weeks, or 2.25 months of instruction between spring and summer testing.[8] The adjusted gain for third graders in 1997 was 2.5 months (0.25 GEs) in reading (see Figure 2-5). Thus, third graders who attended Summer Bridge in 1997 increased their test scores by approximately one month for each month of instruction, including the time between spring testing and the end of the regular school year.

Did these students also improve their test scores at this rate during the school year? Using the same method that we used to calculate an adjusted gain, we estimated school year learning gains for Summer Bridge students based on their prior test-score trajectories. These results shed a different light on the relatively small learning gains for third graders in Summer Bridge. Although third graders who attended Summer Bridge seemed to increase their test scores by one month for each month of instruction during the summer, this was not the case during the school year. The average third grader who attended Summer Bridge in 1997 gained roughly five months in reading, on average, during the entire 37 weeks (10 months) of the prior school year.

Sixth and eighth graders who attended Summer Bridge in 1997 had larger average school year test-score increases than third graders. These increases, however, are still substantially below the average gains made by the typical CPS student. During the 1997 school year, for example, the average eighth grader increased his or her ITBS scores by 1.08 years in reading and fully 1.3 years in mathematics, compared with school year gains for Summer Bridge students of 0.81 years, and 0.76 years, respectively.[9] Clearly, students who attend Summer Bridge are those who struggled in previous years and had smaller learning gains than their classmates.

grams are often run in districts with less adequate resources that serve more economically and academically disadvantaged students.

Summer program effects are larger when there are small class sizes and when individualized instruction is emphasized. Summer programs in which teachers used small groups or one-on-one instruction produced the largest effects.

Summer program effects tend to be larger in mathematics than in reading. This could mean that mathematics skills are easier to address in shorter time periods. It could also mean that because studies have found that students lose more knowledge in mathematics than in reading over the summer, summer programs have a greater effect in mathematics. This is because students generally may be better able to sustain or improve their reading than their mathematics skills while out of school.

Remedial summer school programs that serve primary and secondary students have larger impacts than programs serving middle-grade students. Differences in grade effects may be driven by across-grade differences in the instructional foci and content of summer school at different grades rather than by age-related differences. Cooper and his colleagues' analysis found that teachers in early grade programs tended to report using the summer for more individualized and creative instruction. Teachers in high school report equivalent academic content compared to the regular school year while teachers in middle school programs tended to emphasize more general study skills in content areas.

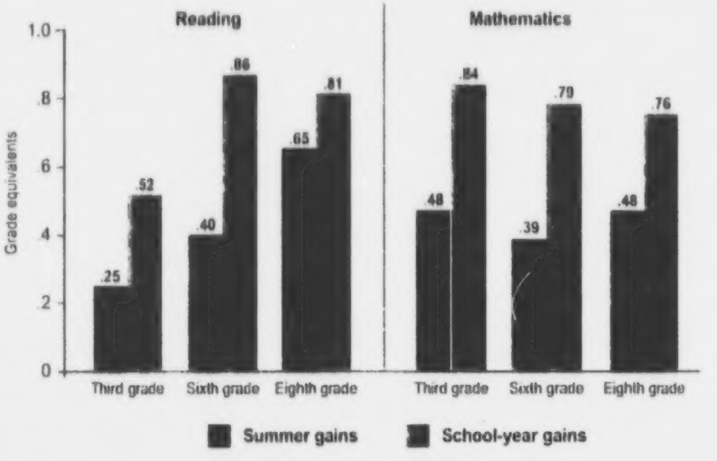
Finally, Cooper and his colleagues did not find differences in the effects of summer school by whether students were required to attend the program or volunteered for the program. Attention to ensuring that students attend and that programs are of high quality does appear to be important. The researchers found that summer programs have average to above average effects when they are structured so that instruction is monitored and attendance is required.

One way to compare Summer Bridge gains to school year gains is to convert ITBS gains into an efficiency ratio of gains per week in summer versus during the school year. In 1997, for example, the estimated test-score gain for third graders was 2.5 months for the nine weeks in the summer and 5.2 months during the school year. Thus, the estimated gain per week for third graders in 1997 was 0.28 (2.5/9) in the summer and 0.14 (5.2/37) during the school year. Taking the ratio of these two, we find that third graders who attended Summer Bridge increased their test scores approximately two times faster per week in Summer Bridge than during the prior school

FIGURE 2-5

How Much Did Summer Bridge Students Gain during the School Year Versus the Summer?

Adjusted School Year and Summer Gains 1997



Summer gains are adjusted. School-year gains are gains from the prior school year.

year (0.28/0.14 = 2, or 200 percent). An efficiency score of 100 percent would indicate that students increased their achievement test scores at roughly the same rate during the summer as the school year. A score of 200 percent indicates that students increased their test scores at a rate that was twice as fast in summer than the school year.

Across all three grades, efficiency ratios suggest that a week in Summer Bridge resulted in greater test-score increases than a week during the school year (with the exception of third-grade mathematics scores in several years where the ratio was approximately one to one). In reading, across all three grades, students' test scores increased almost twice as fast per week in summer than the school year (see Figure 2-6a). Eighth-grade students in Summer Bridge increased their reading achievement at over three times the rate of the academic year. We see similar results in mathematics, except in the third grade, where gains were very high in 1997 but substantially lower thereafter (see Figure 2-6b). It is important to recognize that high ratios in the sixth and eighth grades reflect large summer gains and smaller than average school year gains. In the third grade, however, the high efficiency ratio reflects mod-

Why Did Summer Bridge Eighth Graders Have Such Large Adjusted Test-Score Increases?

An important finding in this chapter was that adjusted test-score gains were greatest among older students, with the largest increases occurring in the eighth grade and the smallest in the third grade. Part of the reason for the smaller relative test-score increases among third graders may be the grade equivalent (GE) metric. Older students tend to make larger test-score increases than younger students because one more item correct on the Iowa Tests of Basic Skills (ITBS) translates into a greater GE increase in the upper grades. When we compared the adjusted test-score gains of Summer Bridge students to their learning rates during the school year (a method that makes learning gains in Summer Bridge relative to average learning gains at that grade level), we found that the learning rate of students who attended Summer Bridge was above what they experienced during the regular school year in all three grades.

The finding that sixth and eighth graders in Summer Bridge experienced large test-score gains does differ from previous research, however. Cooper and his colleagues' evaluation of summer school found that remedial summer programs serving primary grade students have larger program impacts than programs serving middle-grade students. Smaller program effects in other studies may reflect program emphasis rather than age differences.[1] Cooper and his colleagues did find that summer programs in the middle and upper grades often focused less on building basic skills and more on general study skills in content areas. Summer Bridge, on the other hand, has a mandatory curriculum focused specifically on basic reading and mathematics. This suggests that summer programs for low-achieving middle-school students that provide remedial instruction in basic skills can produce substantial results.

A second interpretation is that both incentive and student motivation differ across grades. Chicago's initiative relies heavily on the incentive it creates for students to work harder. Eighth graders face the greatest costs in not meeting the test-score cutoffs—they don't go to high school. Older students may also have a greater capacity to shape their school performance through their own motivation and work effort.[2] This would suggest that Summer Bridge gains among older students are more about the degree to which students are motivated rather than about particular curricular foci.

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[1] Cooper et al. (2000).

[2] Roderick and Engel (2001).

est gains in Summer Bridge compared to very small school year gains.

Summer Bridge Test-Score Gains by Students' Risk and Demographic Characteristics

A critical question is whether some students benefit more from participation in Summer Bridge than others. Not all students who attend Summer Bridge face the same task. Some may be very close to the test-score cutoffs and need only minimal gains. Others face significant learning gaps. Whether programs like Summer Bridge provide greater or lesser benefits to students with very large skill gaps is an open question. On the one hand, students with the lowest skills may benefit most from extended instructional time with teachers in more homogenous environments where teachers have the opportunity to spend more class time on basic concepts. On the other hand, students who enter Summer Bridge with very low skills may simply be too far behind to catch up in six weeks. This problem might be exacerbated by the Summer Bridge curriculum, which is fast paced, intended to be on "grade level," and is focused on the skills that are covered on the ITBS. Students with very low skills may need more time, a different level of intervention, and more remedial content.

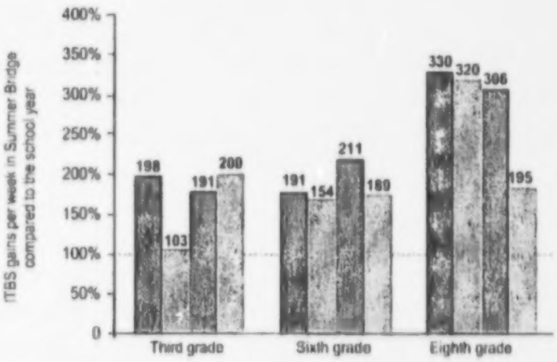
In addition, although the program has a mandatory attendance policy, it also relies on the threat of retention to motivate students to work toward meeting the cutoffs. Students who are closer to the test-score cutoffs may be more motivated in the summer because they are more likely to believe that the goal is within their reach if they work hard. Students who have very low skills may feel less able to meet the test-score cutoff over the summer and may perceive the program more as a punishment than as a support, further exacerbating disengagement.

We evaluated how Summer Bridge adjusted test-score gains varied by students' prior achievement using the risk categories described in Chapter 1. Since these risk categories are defined by how far behind the ITBS cutoff students were when they entered that

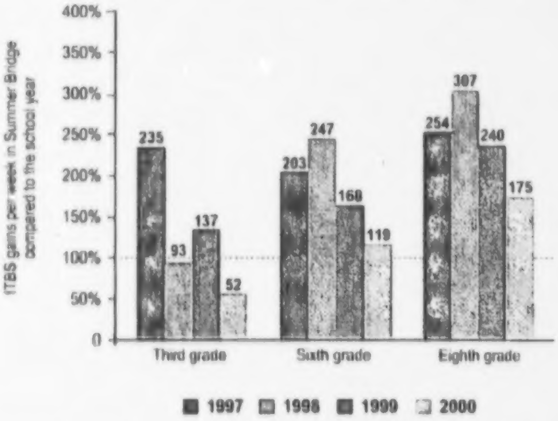
FIGURES 2-6A AND B

Learning Gains per Week in Summer Bridge Were Substantially Higher Than During the School Year

Relative Efficiency of Summer to School Year Gains in Reading



Relative Efficiency of Summer to School Year Gains in Mathematics



Note: To obtain the summer learning rate, we divided the adjusted summer gain by nine—the number or weeks of summer school plus estimated instructional time at the end of the school year after testing. Thus, in 1997, the adjusted test-score increase in reading for third graders of 2.5 months converts to a per week gain of .28 (calculated by dividing 2.5 months by 9 weeks). To obtain the school-year learning rate, we divided the predicted school-year gain by 37—the number of weeks in a typical school year before testing. For third graders who attended Summer Bridge in 1997, their average school-year test-score increase was 5.2 months or a per week gain of .14 (5.2/37).

grade, poor performance on the spring ITBS is not confounded with estimates of how well a student did in Summer Bridge. Students were defined as being at *high* risk of retention if their prior test-score trends indicated they would have to increase their reading/math ITBS score by over 1.5 GEs in one year in order to reach the cutoffs. Students were defined as being at *moderate* risk if their prior test-score trends suggested they would have to increase their ITBS scores by between 0.5 and 1.5 GEs. And, students were defined as being at *low* risk of retention if their predicted prior year's test score was 0.5 or less below the cutoff. We show results for 1999 only, as we observe similar patterns in other Summer Bridge years.

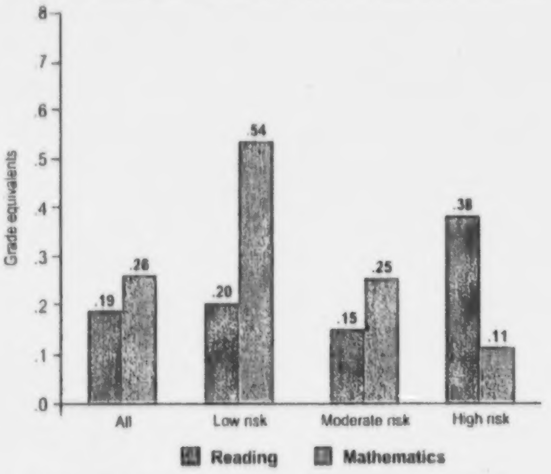
In the third grade, high-risk students experienced the largest adjusted test-score increases in reading (see Figure 2-7a). The gains were large in both absolute terms and in comparison to their more moderate-risk peers. In 1999, the average adjusted test-score gain in reading among high-risk third graders was nearly four months (3.8), compared to smaller (1.5 to 2 months) test-score increases for students at low to moderate risk. The opposite pattern occurred in mathematics in the third grade. Third graders at high to moderate risk of retention experienced small adjusted test-score increases in mathematics while low-risk students had larger increases.

In the sixth and eighth grades, students who entered Summer Bridge with test scores closer to the promotional cutoffs experienced larger adjusted test-score increases in the program, with the exception of eighth-grade mathematics (see Figures 2-7b and 2-7c). For example, in sixth grade, the average Summer Bridge student at low risk of retention (students whose fifth-grade ITBS reading scores were less than 0.5 GEs below the promotional cutoffs) experienced adjusted test-score increases in Summer Bridge of nearly six months (0.57) compared to an average adjusted gain for high- and moderate-risk students of slightly over four months. At the same time, these adjusted test-score increases for moderate- and high-risk students are still substantial. Thus, high- and moderate-risk sixth and eighth graders experienced signifi-

FIGURE 2-7A

High-Risk Third Graders Gained the Most in Reading, but the Least in Mathematics in Summer Bridge

Adjusted Summer Bridge Gains by Risk of Retention, 1999

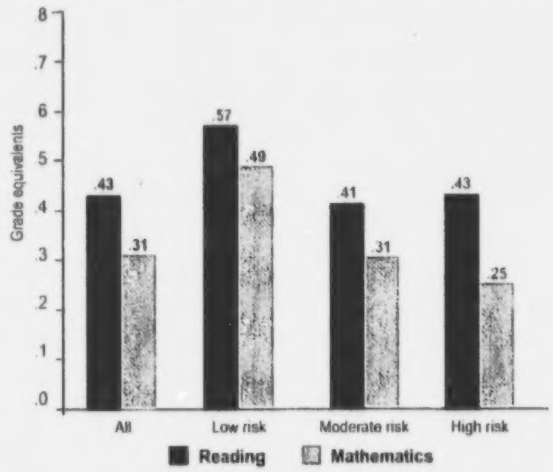


Ten percent of third graders attending Summer Bridge are in the low-risk category, 75% in the moderate-risk category, and 15% in the high-risk category.

FIGURE 2-7B

Low-Risk Sixth Graders Had Higher Learning Gains in Reading and Mathematics

Adjusted Summer Bridge Gains by Risk of Retention, 1999

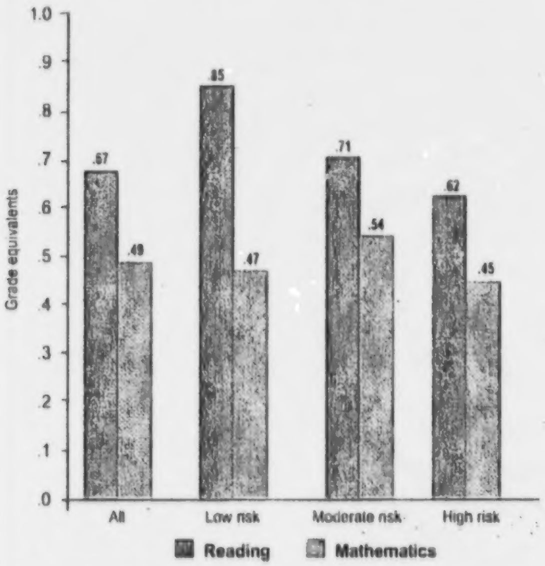


Eight percent of sixth graders attending Summer Bridge are in the low-risk category, 59% in the moderate-risk category, and 32% in the high-risk category.

FIGURE 2-7C

Low-Risk Eighth Graders Had Higher Reading Gains

Adjusted Summer Bridge Gains by Risk of Retention, 1999



This was not statistically significant for reading in regression. Ten percent of eighth graders attending Summer Bridge are in the low-risk category, 44% in the moderate-risk category, and 46% in the high-risk category.

cant test-score gains, although they were not as large as those of students closer to the cutoff.

We also used a hierarchical linear model (HLM) to estimate whether students of different racial and ethnic groups as well as females and males had different outcomes in Summer Bridge once we accounted for differences across groups in their levels of prior achievement and the schools they attended (see Appendix D for details on the HLM and controls used). After accounting for students' prior achievement and school characteristics, adjusted learning gains in Summer Bridge were quite similar across racial and ethnic groups (see Figure 2-8). African-American third and sixth graders did have slightly lower than average learning gains in reading, but these differences were not very large and may have occurred by chance. Adjusted test-score gains in Summer Bridge did differ by gender. In the third and sixth grades, boys had significantly lower adjusted test-score gains in mathematics (see Figure 2-9). In the third grade, boys experienced smaller test-score gains in reading as well, even after accounting for differences in students' prior test scores.

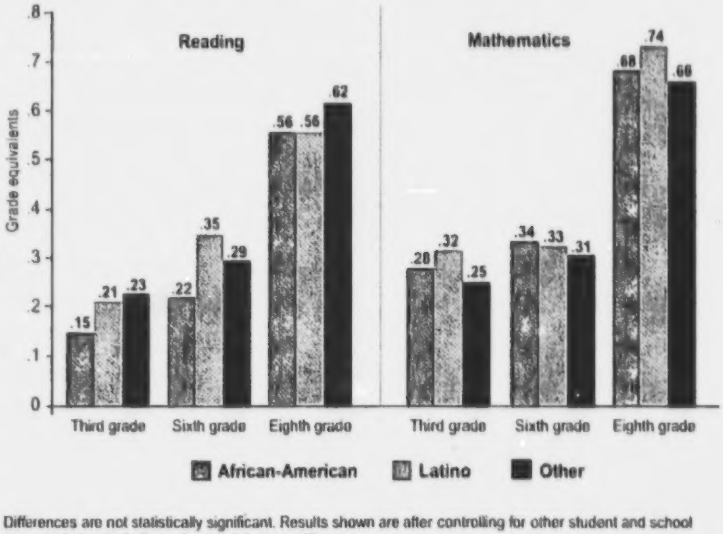
How Much Do Summer Bridge Test-Score Increases Vary across Schools?

Another important policy question is whether general differences in school quality result in differences in summer program quality. The highly prescribed and centralized nature of Chicago's program may reduce variation in program quality across schools. Nonetheless, CPS schools continue to have wide flexibility in deciding how to staff the program, and teachers have flexibility in how they choose to provide instruction. Schools that operate efficiently and have good instructional programs, better principal leadership, or more highly qualified staff may simply be more equipped to

FIGURE 2-8

Summer Bridge Gains Do Not Differ Substantially by Student Race

Adjusted Gains by Race in 1999

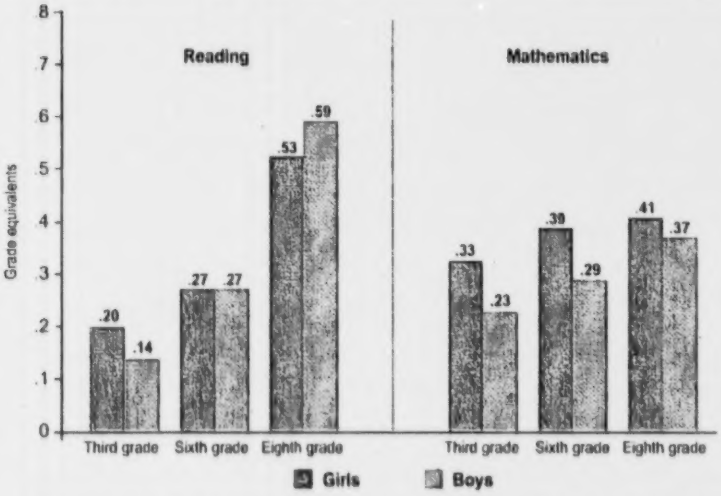


Differences are not statistically significant. Results shown are after controlling for other student and school characteristics, including school racial composition.

FIGURE 2-9

Boys Tend to Have Smaller Summer Bridge Learning Gains in Mathematics Than Girls

Adjusted Gains by Gender in 1999

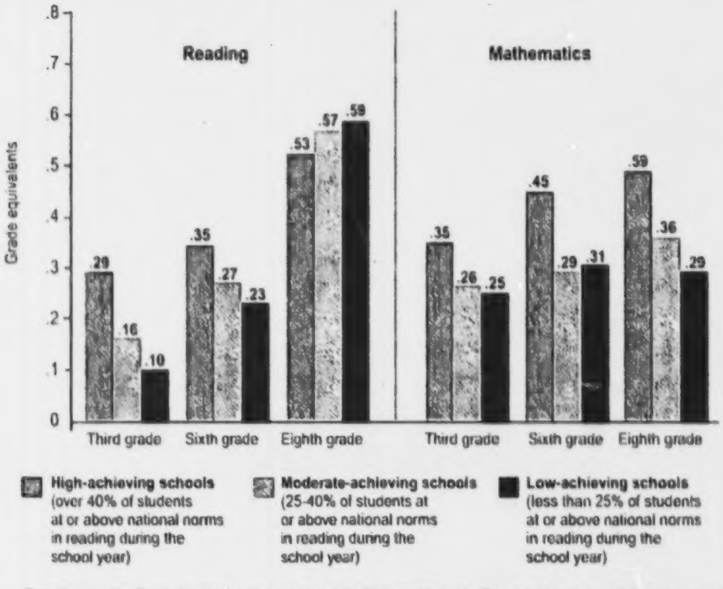


Differences are significant in math in third and sixth grades but are not in reading except in third grade. Results shown are after controlling for other student and school characteristics.

FIGURE 2-10

Students in Schools with Higher School Year Achievement Have Larger Test-Score Gains in Summer Bridge

Adjusted Summer Bridge Gains by School Achievement in 1999



Results are significant for third grade reading and sixth grade math. Results shown are after controlling for student and school characteristics.

provide effective instruction during the school year and in the summer. Thus, a critical question is whether summer programs produce similar effects across schools or whether they exacerbate the differences in school quality that students experience during the school year.

Even though we do not have a measure of school quality, we can look at whether test-score increases in Summer Bridge varied by both school-level achievement and racial composition. We obtained these results from the same HLM that estimated adjusted learning gains across schools while taking into account students' achievement levels and demographic characteristics. Thus, these results can also be interpreted as differences in test-score gains across schools if all schools served average Summer Bridge students.

Even after accounting for the fact that schools with low achievement during the school year tended to serve lower achieving students during Summer Bridge, adjusted learning gains varied significantly across schools. Students who attended Summer Bridge in high-achieving schools (those with higher school year ITBS scores) experienced significantly larger gains in Summer Bridge than students in lower achieving schools (see Figure 2-10). These differences were more pronounced in mathematics than in reading. Summer Bridge students'

Why Do Third Graders Have Lower Test-Score Improvements?

The scores of sixth and eighth graders on the Iowa Tests of Basic Skills (ITBS) have improved since Chicago's policy to end social promotion was implemented. Third-grade performance increases have consistently lagged behind those for sixth and eighth graders, even though they have also improved since the policy's implementation.[1] Given their developmental stage, third graders may have less of an ability to understand the threat of retention and, thus, may be less motivated than older students to work hard or to take the test more seriously.

Analysis indicates that the ITBS may not be an adequate tool to measure learning for low-achieving students. Younger students in particular may have failed to learn basic test-taking skills. The distribution of raw test scores shows that third graders have much higher rates of scoring below "chance" than students in higher grades. Chance is defined as the expected score a student would receive if guessing at random. For example, the third-grade reading ITBS has 36 multiple-choice questions, each with four possible answers. A student answering the test randomly has a one in four, or 25 percent, chance of getting any one of these questions correct. Across 36 questions, this results in an expected total of nine questions correct (25 percent of 36). Between 11 and 18 percent (depending on the form) of third graders tested answered nine or fewer questions correctly (scoring below chance) on the spring ITBS. On the summer ITBS, the percentage of third graders scoring below chance ranges from 25 to 27 percent. That is, over a quarter of third graders tested after Summer Bridge scored lower than they theoretically would have by answering "A" to every question.

Year		**1997**	**1998**	**1999**	**2000**
Test Form		**(M,K)**	**(L,K)**	**(M,K)**	**(K,L)**
Grade 3					
Spring	*Percent*	11%	16.7%	10.5%	17.8%
	Number of students	3,850	5,287	3,755	6,355
	GE at chance	1.6	2.1	1.6	1.9
Summer Bridge	*Percent*	26%	26.7%	25.4%	26.9%
	Number of students	2,768	2,787	2,512	2,707
	GE at chance	1.7	1.9	1.9	2.1
Grade 6					
Spring	*Percent*	21.1%	7.2%	18.9%	5.4%
	Number of students	5,765	2,113	5,320	1,435
	GE at chance	4.6	3.8	4.6	3.9
Summer Bridge	*Percent*	12.9%	12.3%	12.9%	7.8%
	Number of students	1,118	993	922	579
	GE at chance	3.9	3.9	3.9	3.8
Grade 8					
Spring	*Percent*	9.3%	4.3%	5.8%	6.4%
	Number of students	2,312	1,171	1,472	1,594
	GE at chance	5.6	5.0	5.6	5.6
Summer Bridge	*Percent*	17.5%	14.8%	11.2%	3.3%
	Number of students	1,003	1,037	656	326
	GE at chance	5.6	5.6	5.6	5.0

Note: "*GE at chance*" is the expected score a student would receive if guessing randomly.

Fewer sixth and eighth graders scored below chance, with the exception of sixth graders in 1997 and 1999. In those years, students took the form M of the ITBS, which appears to be substantially more difficult than the other forms for sixth graders. The number of eighth graders scoring below chance has declined over time.

Calculating test-score gains for low-achieving students is imprecise for students who score below chance. For these students, we cannot tell whether the difference between two test scores represents an actual increase in student learning or if it is simply the result of luckier guessing. A below-chance test score does indicate poor reading comprehension, but the accuracy of the score is questionable.

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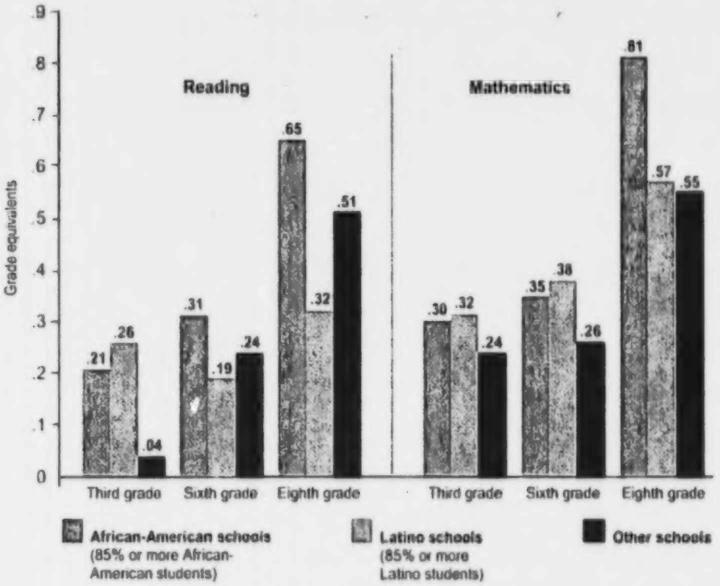
[1] Roderick et al. (1999); Roderick et al. (2000).

FIGURE 2-11

Eighth Graders in African-American Schools Have Larger Gains in Summer Bridge

Adjusted Gains by School Racial Composition in 1999



Results are significant for 8th grade reading and mathematics for all three grades. Results shown are after controlling for student and school characteristics

average adjusted mathematics test-score gains were over one month larger in high-achieving schools than in the lowest achieving schools in the system. For third graders, these school effects were also found in reading. The average estimated summer test-score gain in reading for third graders in schools with higher school year performance was nearly three times as large as the estimated summer gain for third graders in schools with the lowest school year achievement.

When we accounted for both the characteristics of students and their schools, we also found differences in Summer Bridge learning gains by the racial composition of the school, particularly in eighth grade (see Figure 2-11). Sixth- and eighth-grade students who attended predominantly African-American schools experienced larger gains in reading than students in predominantly Latino schools.[10] In eighth grade, the adjusted ITBS reading gains for students in predominantly African-American schools were over twice as large as those of students in predominantly Latino schools. Previously, we found that test-score gains did not differ by the race of the individual *student*, but here we find a difference in test-score gains based on *school* racial composition.

Passing and Promotion Rates

Although improvements in test scores are important for measuring the effectiveness of Summer Bridge, ultimately, the purpose of the program is to help students avoid retention by raising their test scores to the promotional cutoffs. In the previous chapter we saw that students who attended Summer Bridge entered the program with significant test-score gaps. Were the test-score gains that we have identified large enough to allow students to meet the promotional cutoffs?

Passing and Promotion Rates by Grade

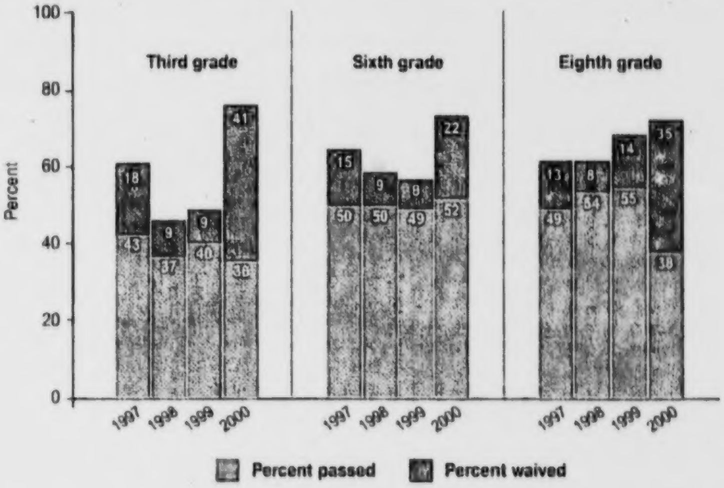
Passing rates at the end of the summer were high among both sixth and eighth graders and lower for third graders (see Figure 2-12). This is consistent with the fact that sixth- and eighth-grade students had higher adjusted test-score gains in Summer Bridge. Between 1997 and 2000, approximately half of sixth and eighth graders who were required to attend Summer Bridge met the promotional cutoffs in both subjects by the end of the summer, compared with 40 percent of third graders. Summer Bridge passing rates have been relatively consistent across years, with the exception of eighth-grade passing rates in the year 2000. As we saw in

Chapter 1 and at the beginning of this chapter, both school year passing rates and adjusted Summer Bridge learning gains among eighth graders were significantly lower in the year 2000.

In the first several years of the policy, some students were promoted at the end of the summer despite not having met the test-score cutoffs. While there was no official "waiver" policy, some students were promoted despite not meeting the cutoffs if they had extenuating circumstances, if their principal requested a waiver, or if they were very close to the cutoffs. In 2000, in response to continuing criticism of the use of a single test score, as well as civil rights complaints, the school system began using multiple measures to make promotional decisions at the end of the summer. These multiple measures included teacher and principal recommendations, grades and attendance in summer school, and the use of a range of scores on the ITBS. We identified students as "promoted despite not meeting the cutoffs" if they advanced to the next grade in September after Summer Bridge without having met the strict ITBS cutoffs in both reading and mathematics. Presumably, these students were promoted because they met the system's alternative criteria for promotion.

FIGURE 2-12

Summer Bridge Passing Rates Were Steady, but Promotion Rates Increased in 2000
Passing and Waiver Rates by Grade



Students who met the cutoff scores in the subjects they needed to pass. Waived students did not meet one or both of the cutoffs but were promoted regardless. Only students who remained in CPS the following fall are included.

The move toward expanding the criteria for promotion in the year 2000 dramatically increased the proportion of Summer Bridge students who were promoted. The largest increase occurred in the third grade. In 1999, 49 percent of Summer Bridge third graders who remained in the school system after the end of the summer were promoted. Most of these students met the test-score cutoffs. In 2000, over three-quarters (77 percent) of Summer Bridge third graders were promoted, less than half of whom met the cutoffs.

Passing and Promotion Rates by Risk Categories

Few high-risk students were able to meet the CPS test-score cutoffs. Recall that we defined students as high risk if their prior test-score trajectories predicted that they would have to increase their ITBS scores by 1.5 GEs or more during the promotional gate year. In the previous chapter, we found that virtually all high-risk students were required to go to summer school. Despite the fact that high-risk students experienced substantial average learning gains in Summer Bridge (approximately four months in reading for third and sixth graders and six months for eighth graders), very few were able to raise their test scores to the cutoffs. Only slightly over 10

FIGURE 2-13A

Passing and Promotion Rates for Third Graders in Summer Bridge by Risk of Retention

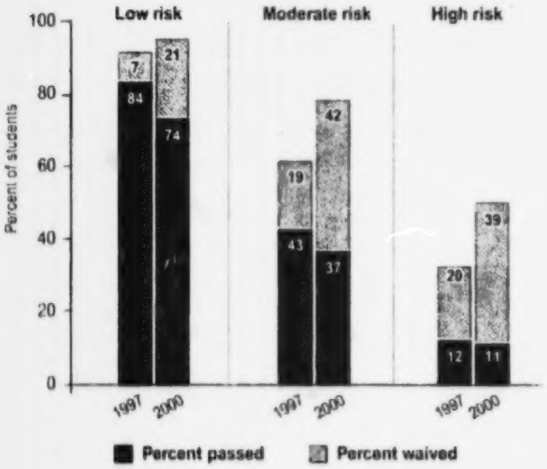
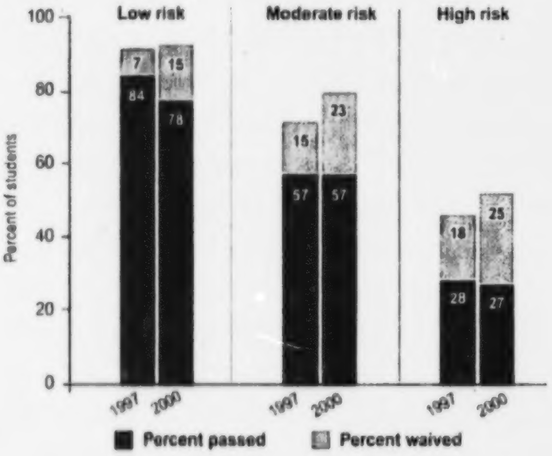


FIGURE 2-13B

Passing and Promotion Rates for Sixth Graders in Summer Bridge by Risk of Retention



percent of Summer Bridge third graders with the lowest test scores were able to reach a 2.8 on the ITBS in both reading and mathematics (see Figure 2-13a). Passing rates were slightly higher among high-risk sixth and eighth graders (see Figures 2-13b and 2-13c). Between one-quarter and one-third of high-risk Summer Bridge students in these grades met the cutoffs in reading and math at the end of the school year.

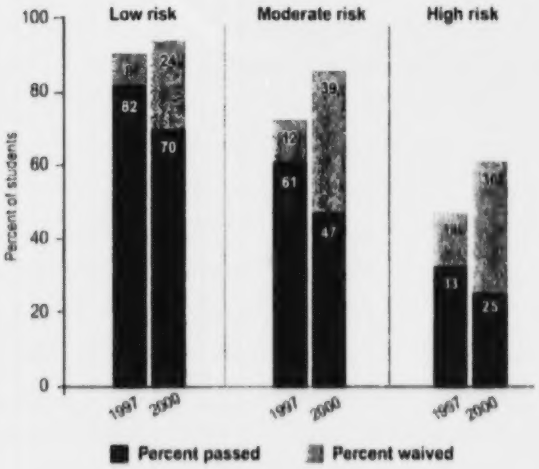
Passing rates among moderate-risk students were also lowest in the third grade. Only about 40 percent of moderate-risk third graders compared with almost 60 percent of sixth and eighth graders who were at moderate risk were able to raise their test scores to the cutoffs by the end of summer.

The use of the expanded promotional criteria dramatically increased the number of high- and moderate-risk students who were promoted at the end of Summer Bridge. Between 1997 and 2000, the proportion of moderate-risk third graders who were promoted at the end of the summer increased from 62 to 79 percent and increased among high-risk third graders from 32 to 50 percent. Across all three grades, low-risk students in Summer Bridge had very high passing rates and, after the expanded promotional criteria were applied in 2000, their chance of being retained was extremely low.

The purpose of examining passing and promotion rates was to answer the question of whether Summer Bridge participation paid off for students. If we look only at whether students met the test-score cutoffs, results for high- and moderate-risk students are mixed. Very few high-risk students, despite test-score increases, were able to raise their scores to the cutoffs. For students at moderate risk, proportions meeting the cutoffs in 1997 ranged from a low of approximately 40 percent in the third grade to close to 60 percent in the sixth and eighth grades. The expanded promotional criteria had a large impact on raising promotion rates for high- and moderate-risk students. The proportion of students who succeeded in meeting the cutoffs combined with those students who were promoted using expanded promotional criteria meant that the majority of Summer Bridge students were promoted at the end of the summer. In the year 2000, about 80 percent of moderate-risk third and sixth graders and 86 percent of moderate-risk eighth graders were promoted at the end of the summer.

FIGURE 2-13C

Passing and Promotion Rates for Eighth Graders in Summer Bridge by Risk of Retention



What Have We Learned and How Do We Interpret These Results?

The goal of this chapter was to assess two sets of outcomes in Summer Bridge. First, to what extent did students have test-score gains in Summer Bridge? And, second, to what extent did participation in Summer Bridge allow students to be promoted to the next grade?

Taken together, our results provide strong evidence that Summer Bridge had positive short-term impacts on test scores in all grades in both reading and mathematics. Sixth- and eighth-grade students experienced significant test-score increases in the program. In all three grades, students who attended Summer Bridge experienced a higher rate of learning during the summer than during the regular school year. And, Summer Bridge produced test-score gains for students across a variety of demographic characteristics. There were some differences in the size of test-score gains by student achievement and gender. Sixth- and eighth-grade students who entered Summer Bridge with test scores closer to the cutoffs tended to have larger test-score increases than students with persistently lower test scores. Also, boys tended to have smaller test-score gains than girls. These differences, however, were not large. Taken together, the lack of any consistent differences in program impact by student characteristics may be one of the most positive findings in this chapter because it suggests that, despite concerns about running large-scale summer programs, Summer Bridge produced rather uniform benefits across students.

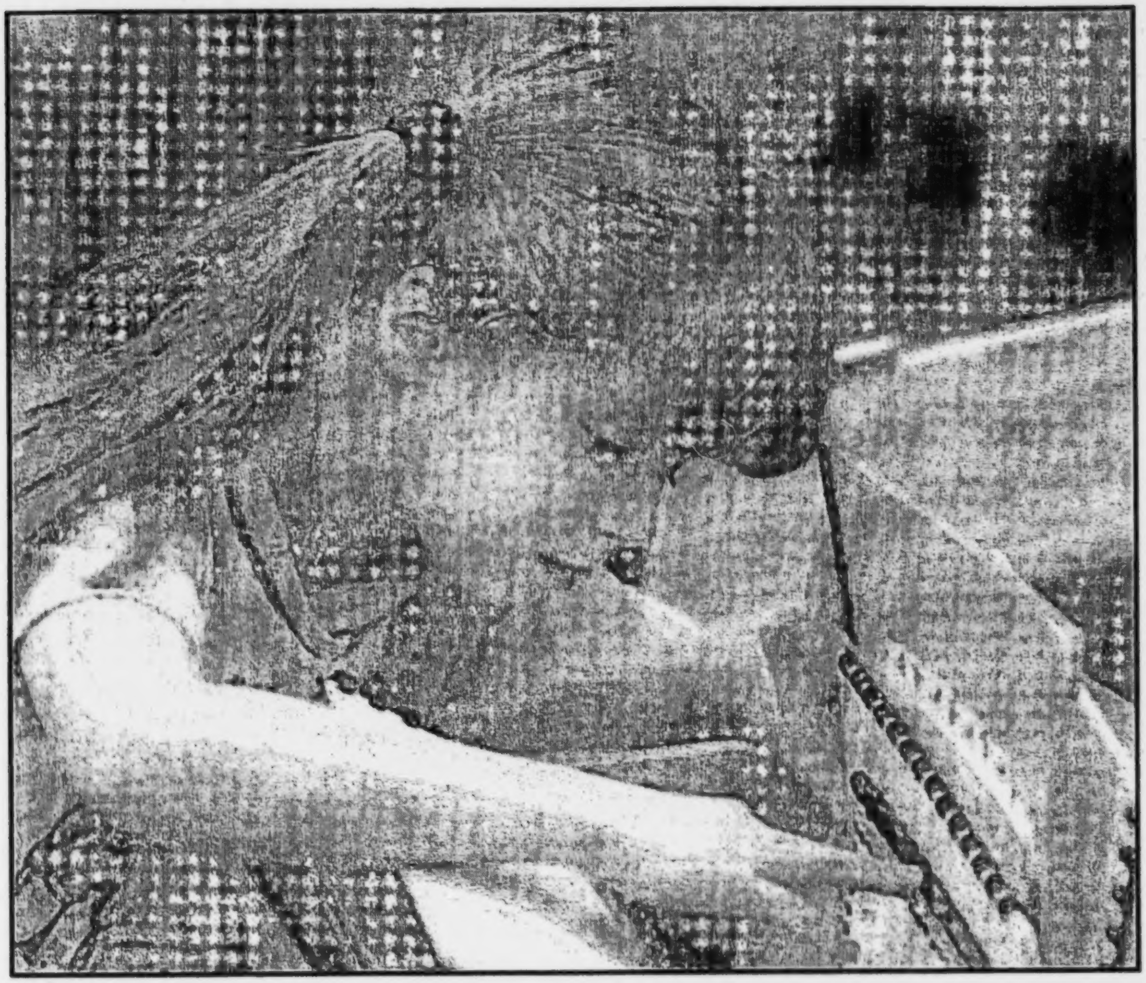
Results for third grade are less positive. Summer Bridge program results in the third grade looked quite similar to those of other programs but were relatively inconsistent across years. Third graders with the lowest skills had the greatest gains in reading in that the gains were substantially above those of moderate- and low-risk students. Thus, for this small but important group of high-risk third graders (15 percent of Summer Bridge students), it appears that Summer Bridge was effective in raising their reading test scores. Effects for third graders at moderate to no risk of retention were much more modest.

Although we do not find evidence that there are significant and important differences in program effects across students, the schools that students attended mattered. Summer Bridge adjusted test-score gains were significantly greater in schools where, on average, the entire student body is higher performing. This occurred even after we accounted for differences in prior achievement of individual students, differences in passing rates during the school year, and differences in Summer Bridge program size. Thus, even for their lowest performing students, high-achieving schools were able to provide more effective learning environments in Summer Bridge.

The differences by school achievement level were most pronounced in the third grade and in mathematics. Third-grade reading teachers have the difficult task of teaching reading comprehension to students who may not have developed basic reading skills yet. In addition, teaching mathematics, particularly in the upper grades, requires that teachers have sufficient content knowledge. Thus, while the highly structured nature of Summer Bridge may produce more uniformity in content coverage, it does not ameliorate overall differences in school quality. A caveat to this conclusion is that adjusting test-score gains for differences in participants' prior test scores and demographic backgrounds may not capture all of the differences in these schools' student populations. Lower performing CPS schools may serve students with greater barriers to learning because, among other reasons, they live in neighborhoods where students' summer school participation and performance may be deleteriously affected (for example, by safety issues). Because we have not accounted for differences in students' actual attendance in Summer Bridge, neighborhood effects, or differences in home support for learning over the summer, we may not be adequately capturing differences in the student populations served by high- and low-achieving schools during the summer.

Summer Bridge effects declined significantly in mathematics in 2000 for all grades and in both reading and mathematics for eighth grade. At this point, we lack the data to determine whether this reflects a trend or a one-time cohort effect. Three policy changes may have affected the 2000 results. First, cutoff scores were increased in sixth and eighth grades and, as a result, many more students were required to attend Summer Bridge. Many of these students were very close to the cutoffs and had to gain very little, which may have decreased their motivation. Second, the system began to shift, as we saw, toward expanded promotional criteria. Eighth graders may have been less motivated to work hard if they were expecting to be promoted after Summer Bridge. And third, across all grades, Summer Bridge teachers were told that they could shift instructional time away from mathematics and toward reading because so many more students were at risk in reading. This may have had a negative effect on test-score gains in mathematics in 2000. In any case, whether this was a one-time effect or represents a new trend remains to be seen.

Finally, this chapter highlights the central tension of creating effective policies under high-stakes testing. On the one hand, findings in this chapter suggest that using single test-score cutoffs for promotional decisions may set up for failure those students with the lowest skills. Despite test-score gains in Summer Bridge that were larger than average for these students, very few high-risk students were able to raise their test scores to the promotional cutoffs. The expansion of the promotional criteria means that students with the lowest skills had a significantly higher likelihood of being promoted to the next grade in 2000, which could be interpreted as a means of rewarding work effort and an acknowledgement of learning gains despite not having met the cutoffs. On the other hand, one could argue that the system is no longer working toward ending social promotion and that many students are now being promoted without adequate skills.



John Booz

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CHAPTER 3

Students' Experiences

Student test scores and promotion rates hold the most direct evidence of whether the CPS Summer Bridge program met its objectives. They may not, however, be the best measure of whether the program provided students with positive learning experiences. For example, one might argue that students increased their test scores over the summer simply because the curriculum covered the skills they needed to score higher on the ITBS. In addition, students may be more likely to work harder on the test and pay attention when it matters most: when it is their last chance to avoid retention. Viewed this way, the Summer Bridge test-score gains we observed in the previous chapter would be largely the result of "testing" and "test preparation" effects rather than of a positive academic environment.

At the same time, prior research suggests that the critical programmatic components of Summer Bridge may lead to both achievement gains and a positive learning environment. There is evidence that small class sizes produce benefits during the school year and the summer, particularly for low-performing students.[1] The combination of focused instruction, small class size, and motivated students may provide a more intensive and personalized learning environment. Research on effective schools has consistently found that students learn more and are more successful when their classrooms combine high levels of personal support, often referred to as personalism, and strong expectations for students to work hard, or academic press.[2] The programmatic characteristics of Summer Bridge might have produced both greater academic press and personalism for students. We would not expect students to report particularly positively on the academic climate or their relationships with teachers in Summer Bridge if their learning gains were simply a result of working hard on the test itself or engaging in specific test prep activities.

This chapter draws on spring and summer survey results and student interviews in 1999 to examine student reports of their experiences in Summer Bridge. We focus on three questions: How did students describe their experiences in Summer Bridge classrooms? What is the difference between students' portrayal of the instructional environment during the school year and during Summer Bridge? And, are there differences across schools and students in descriptions of the program—for example, did students with very low skills report different experiences in Summer Bridge than students closer to the test-score cutoffs?

Student Experiences in Summer Bridge: Survey Results

In 1999, the Consortium on Chicago School Research conducted a survey of sixth- and eighth-grade Summer Bridge students. The survey included a set of questions that asked students to compare their experience in Summer Bridge to the school year and also asked students to respond to general questions about the program. Because many students attending Summer Bridge have low reading scores, the survey, when possible, used simple response categories, such as "a lot," "a little," and "no."

Data Used in This Chapter

This chapter uses three sources of data on Chicago Public School (CPS) students: (1) surveys of sixth- and eighth-grade students who attended Summer Bridge in 1999 and all of their teachers, (2) school year surveys conducted in spring 1999, and (3) interviews with 48 students who attended Summer Bridge and were part of a longitudinal study of Chicago's efforts to end social promotion.

Survey Samples. In spring 1999, the Consortium on Chicago School Research conducted its biannual survey of sixth-, seventh-, and eighth-grade elementary school students and ninth- and tenth-grade high school students, and all teachers and principals in the system. This is a regularly scheduled survey that was also administered in 1994, 1997, and 2001. During summer 1999, the Consortium also administered surveys to sixth- and eighth-grade Summer Bridge students and teachers in the program. Summer surveys were administered during the last week of the program in August. The summer survey asked students questions about their experiences in Summer Bridge, their attitudes toward testing, and their perceptions of support from teachers and parents. It also repeated two series of items from the spring survey that were meant to assess the academic orientation of classrooms and the level of personal support students received from teachers (see Appendix E, Methodology for Developing Survey Measures). These two sets of items are core indicators developed by the Consortium and have been linked over time to student and school performance. Repeating the measures allows us to compare students' responses over time. In 1999, 56 percent of sixth- and eighth-grade students responded to the survey during the school year.

Sample Size. In 1999, 7,265 sixth-grade students and 6,128 eighth-grade students were required to attend Summer Bridge and were tested at the end of the summer. Appendix G describes the demographic and achievement composition of students who attended Summer Bridge in 1999, students who completed the summer surveys, and students who completed both summer and school year surveys. Surveys of students in Summer Bridge were collected from 88 percent of schools that had sixth- and eighth-grade classrooms. Completing the summer surveys were 4,829 sixth graders and 4,225 eighth graders, resulting in a survey completion rate of 66 percent of sixth and 69 percent of eighth

If given the choice, most students would not go to summer school. Not surprisingly, many students reported that they were "mad" that they had to attend Summer Bridge. Over three-quarters of sixth graders and 88 percent of eighth graders were mad that they had to go (see Figures 3-1a and 3-1b). Despite this, students portrayed Summer Bridge as a positive learning environment in which they were expected to work hard and where teachers supported their efforts. Eighty-one percent of sixth graders and 84 percent of eighth graders reported that they worked harder in summer school than the regular school year. Students also reported that an important distinction between the school year and summer was the amount of attention they received from teachers. Over 85 percent of sixth and eighth graders reported that teachers had more time to help them in Summer Bridge than during the regular school year. The fact that students felt both that they were working harder and that they were getting more support from teachers likely contributed to students' perceptions that they were learning. About three-quarters of sixth and eighth graders reported learning more in Summer Bridge than during the school year.

The portrayal of Summer Bridge classrooms as being more conducive to supporting students' work

graders who took the Iowa Tests of Basic Skills (ITBS) in August.

Of the schools that participated in the summer survey, over 80 percent also participated in the spring survey. In these schools, 2,519 sixth graders and 2,303 eighth graders completed the spring survey. Thus, we were able to obtain a matched sample for 55 percent of the eighth graders and 52 percent of the sixth graders who completed summer surveys. The survey and matched sample underrepresents African-American students, largely because predominantly African-American schools were less likely to complete surveys during both the school year and summer.

The Qualitative Study. In 1999, as part of the evaluation of Chicago's initiative to end social promotion, the Consortium began a longitudinal study of 102 low-achieving African-American and Latino sixth and eighth graders from five CPS elementary schools. The study followed students, their families, and their teachers in preparing for and taking the ITBS over the summer and in the retained or promoted years. The baseline interview was conducted in the spring prior to testing. Students were then interviewed immediately after taking the ITBS and once during the summer. Retained students were interviewed twice during their retained year and those who were promoted were interviewed once.

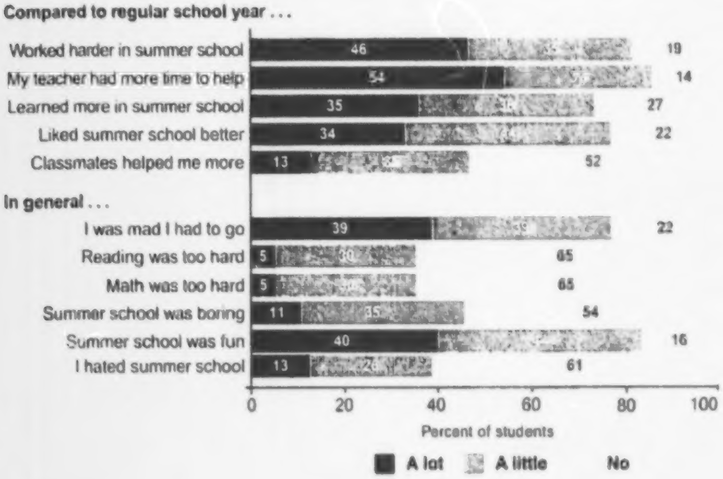
The qualitative study focused on the experiences of students who were at risk of being retained and who attended schools in two of the five neighborhoods with the highest retention rates, those neighborhoods where one-third or more of included students were being retained. One of the two neighborhoods selected for the study was predominantly African-American and the other was mixed Latino and African-American. Within each neighborhood, we identified two schools for participation. The fifth school was a predominantly Latino school with a large bilingual education program. This school was chosen in order to examine how Latino immigrant families and students in bilingual education were affected by the policy.

Within each school, approximately ten low-achieving sixth graders and ten low-achieving eighth graders were selected and recruited for the study. At the end of the school year, 39 (38 percent) of the 102 students met the test-score cutoffs and were promoted. There were 63 who needed to go to Summer Bridge, and of those we interviewed 48.

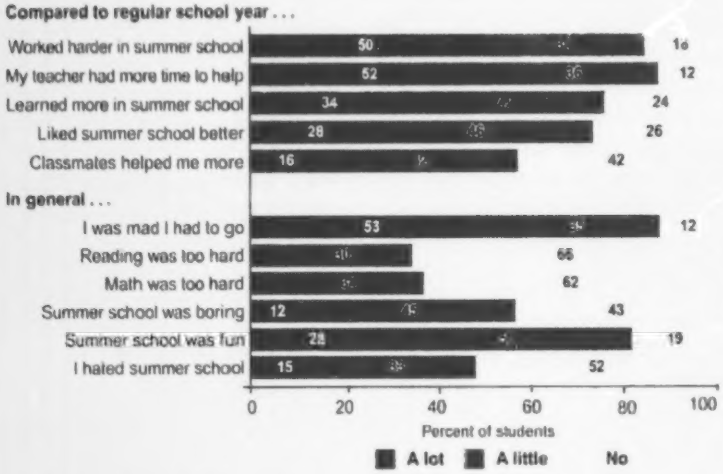
FIGURES 3-1A AND B

Summer Bridge Students Are Very Positive about Their Summer School Experience

Sixth Graders



Eighth Graders



Results are from the 1999 Summer Bridge survey.

effort than classrooms in the regular school year was also reflected in students' overall assessment of their experiences. Over 70 percent of sixth and eighth graders reported liking summer school better than school in the regular year. And, while students reported that they worked hard in summer school, only about a third felt that the work was too difficult.

These survey responses are certainly positive. They depict Summer Bridge as an environment where students work hard and feel supported by teachers. Student reports suggest that Summer Bridge may provide an atmosphere that is conducive to learning for low-achieving students. Students were also positive about Summer Bridge in their interviews. We need to be careful, however, in interpreting the results from cross-sectional surveys because they offer us no frame of reference or real opportunity to compare student responses over time and in different environments. Also, we are relying on students' memory of the school year for these questions, which may not always be highly reliable or accurate.

We can examine the extent to which student experiences in Summer Bridge differed from the school year by looking at changes between the school year and Summer Bridge on two critical indices of classroom environments, personalism and academic press. We were able to match the Summer Bridge surveys of 55 percent of eighth graders and 52 percent of sixth graders to surveys they completed earlier in 1999. We then created the two measures, academic press and personalism, with the Summer Bridge survey items using Rasch analysis. These measures had already been created using the same items from the school year survey. For each measure, the questions were combined into a single scale that ranged from 0 to 10 and placed on a common metric in order to allow for comparison between the regular school year and Summer Bridge.[3]

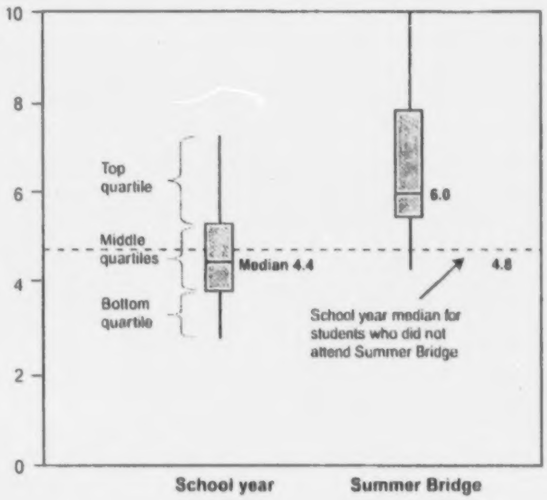
Differences in School Year and Summer Bridge Reports on Academic Press and Personalism

Students who attend Summer Bridge are those CPS students with the lowest school year achievement. On the spring surveys, these students were more negative than average sixth and eighth graders in their reports of academic press and personalism. For example, the median score on the measure of academic press among sixth graders who met the test-score cutoffs during the school year was 4.8 (see Figure 3-2a). On the same survey, the median score for academic press among sixth graders who later attended Summer Bridge was 4.4. Three months later, when the same students were asked about academic press in Summer Bridge, they were much more positive, with a median score of 6.0. Indeed, during the summer, well over 75 percent of sixth-grade Summer Bridge students had higher scores on academic press than the median sixth grader during the school year. We see the same pattern of results in eighth grade, and in measures of personalism in both grades (see Figures 3-2b, 3-3a, and 3-3b). In each case, students who attended Summer Bridge were more

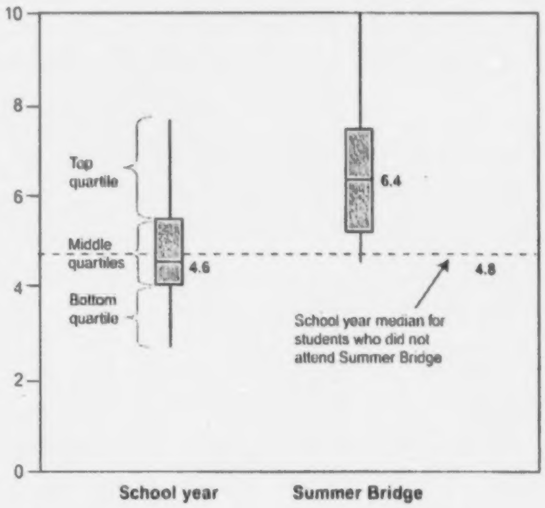
FIGURES 3-2 A AND B

During Summer Bridge, Students Report Much Higher Academic Press Than during the School Year

Sixth Graders' Reports of Academic Press



Eighth Graders' Reports of Academic Press



Is Summer Bridge Really Different? A Qualitative Look

In 1999, we conducted intensive interviews with 48 sixth- and eighth-grade students who attended Summer Bridge.[1] These students were part of a longitudinal study of over 100 low-achieving students that was conducted as part of a larger evaluation of the initiative to end social promotion. Interviews focused specifically on exploring students' experiences in summer school to elicit comparative information between school year and Summer Bridge experiences.

Most Students Felt Summer Bridge Was a Good Idea and That They Had a Good Experience

When asked whether Summer Bridge was a good idea or whether they liked Summer Bridge, 60 percent of the students interviewed responded positively. Only three students (6 percent) reported an extreme dislike of the program. The second chance it afforded and the support it gave students to raise their test scores were primary reasons given by students for why the program was a good idea. As one student explained, "Yes, it's a good idea because they give you an opportunity to take the exam and they prepare you well." When asked if she liked the program, this student responded, "Yes, because it's fun to come, and also because they teach us good things." The focus on the Iowa Tests of Basic Skills (ITBS) was critical for many and was linked to feelings that teachers cared. For example, an African-American eighth grader explained that he felt his Summer Bridge teachers were helping him more than his teachers during the regular school year: "The teachers in the regular school year, they had us get ready for the [ITBS] at the last minute; they didn't help us right away, and in summer school they helped us right away."

For many students, appreciating the second chance and learning were connected. A Latino eighth grader explained that he thought summer school was a good idea because, "[At] some other school they won't give you another chance. And they give you a chance in summer school so, you know, I basically wanted to go." When asked what was the best thing about the program, however, Fernando responded "learning." Other students also expressed that they noticed their skills were improving more generally. One African-American student who needed substantial improvement in reading to pass the test, felt after the summer that he was prepared, "because studying for this test next week—I feel my reading's going faster." Another African-American eighth grader was initially disappointed by having to go to summer school and felt it was a bad idea. Yet, when she was interviewed during Summer Bridge, She commented that she had changed her mind: "Because now I see that I learned a lot of things that I didn't know, and it's good for me; it's for my benefit so I could have a second chance to go to the ninth grade."

Summer Bridge Learning Environment Different from the School Year

Almost 88 percent of students interviewed (42 out of 49) described their Summer Bridge classrooms and relationships with teachers as different from the school year, and 26 out of 48 described their classroom environment in Summer Bridge as substantially better than during the school year. When students talked about what was different, they focused primarily on two aspects of Summer Bridge: teachers slowed the pace and they provided more individual attention. Students also felt that teachers made sure everyone understood the lesson. For example, when a Latino eighth-grader was asked what Summer Bridge teachers did that regular school year teachers didn't, he replied: "Explain the work real carefully; and if you have an answer or problem, you tell them and they do it all over again for you so you can understand it. That's way better—they don't hardly do that in the regular school year. They explained it real fast, that's it." Another student had a similar response, "This summer, I get a better understanding. Because Mr. B, he breaks stuff down for us. Nope, he won't stop 'till everybody's doing it.... He makes sure you understand. If you say you understand and you really don't, he'll start asking you questions about the story."

Indeed, the attention to explanation was viewed by students as a unique characteristic of instruction in Summer Bridge. Students experienced a concern for their own understanding and an interaction with teachers around problems that they did not feel they usually received. As one eighth grader explained, he felt he was ready for the ITBS "because he really explains it to us.... If we don't understand, just keep asking, keep asking; he'll show us how." And another student commented that his teacher was helping him a lot because "She gives us a better understanding. If we don't know it, she explains it to us. And she'll do one problem for us; she'll let us try to do it, by ourselves."

Part of students' perceptions that teachers in Summer Bridge were more concerned about their understanding pointed to differences in the level at which classes were taught. It also seemed to be driven by students' perceptions that they received more personal attention in the program. When asked if his Summer Bridge teacher was helping him, an African-American eighth grader remarked, "If I need help, I go to her desk and ask her. She'll, like, explain it one by one— she'll tell me to read this paragraph and then read that question and then look at my decision." An African-American sixth grader had a similar reaction, "Sometimes he'll take us by ourselves and then he teaches us; and, like, teachers they don't do that." When asked if he got that attention during the regular school year, he responded, "Not all the time." Another student explained:

> It's much more boring in regular school. Like, teachers should be like Ms. D. She teaches us, and when we do something wrong she comes and helps us. But see, regular teachers don't do that. Summer school teachers, they like tell you, "Okay. This is wrong," and they fix it for you; and then regular teachers, they're like, "This is wrong, try it again." But the summer school teachers explain it, and usually in regular school they don't.

Students who reported that they didn't like Summer Bridge, although a small group, often expressed frustration with the slow and repetitive pace. For example, in one classroom, a student praised the teacher for going slow and paying attention to students' understanding. For another student in the same classroom, this slow pace was frustrating. She explained, "It's very boring, and the teachers that we got, it's like the same stuff we did before....It's a continuation....And if we mention [a topic] to [the teacher], he'll spend the whole...day on that."

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[1] This analysis was taken from a paper written by Susan Stone and Mimi Engel that was presented at the 2001 annual meeting of the American Educational Research Association in New Orleans, LA.

negative about their teachers than the average CPS student during the school year, but were substantially more positive during the summer. These marked changes in both the median and the distribution of student responses suggest that Summer Bridge provided a very different learning environment for these students.

Which Students Were More Positive?

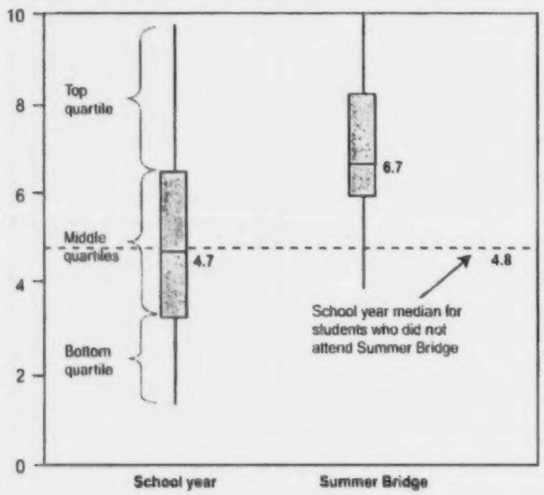
Student interview responses indicate that students liked Summer Bridge because they appreciated the second chance it gave them and felt that they received a great deal of support and attention from teachers to help them raise their ITBS scores. We might expect, however, that some did not experience Summer Bridge so positively. Students with very low skills, for example, might feel that the goal of meeting the test-score cutoffs is out of reach. This could lead them to view Summer Bridge as a punishment, making the program a less positive learning environment.

In order to investigate differences across students in their assessments of the program, we used a hierarchical linear model described in detail in Appendix D to examine test-score gains. Here, we looked at differences across students in changes in academic press and personalism, as well as differences in their overall assessments of Summer Bridge (see Appendix F). The

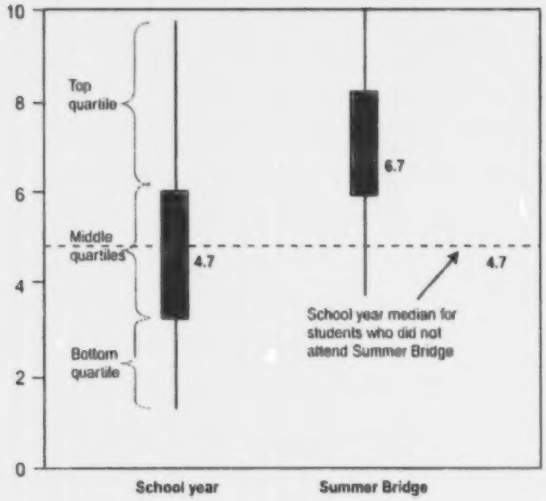
FIGURES 3-3A AND B

During Summer Bridge, Students Report Much Higher Personalism Than during the School Year

Sixth Graders' Reports of Personalism



Eighth Graders' Reports of Personalism



Questions That Were Asked of Students in the School Year and Summer

Academic Press

To what extent do you (strongly disagree, disagree, agree, strongly agree) that your teacher [or summer school teacher] . . .

Encourages me to do extra work when I don't understand something.

Praises my efforts when I work hard.

Cares if I don't do my work in class.

Expects me to do my best all the time.

Expects me to do my homework every night.

Thinks it is very important that I do well.

Cares if I get bad scores on the Iowa (ITBS) [summer only].

Personalism

To what extent do you (strongly disagree, disagree, agree, strongly agree) that your teacher [or summer school teacher] . . .

Really listens to what I have to say.

Helps me catch up if I am behind.

Notices if I have trouble learning something.

Is willing to give extra help on schoolwork if I need it.

Believes I can do well in school.

measure "overall assessment of Summer Bridge" combines students' answers to questions about their Summer Bridge experiences (see Figures 3-1a and 3-1b on page 54) into a single summary indicator.[4] This analysis examines how changes in academic press and personalism, as well as scores on the overall assessment of Summer Bridge, varied by students' prior achievement, demographic characteristics (race and gender), by the race and achievement levels of their schools, and Summer Bridge program characteristics (class size and the percentage of students the teacher knew before Summer Bridge).

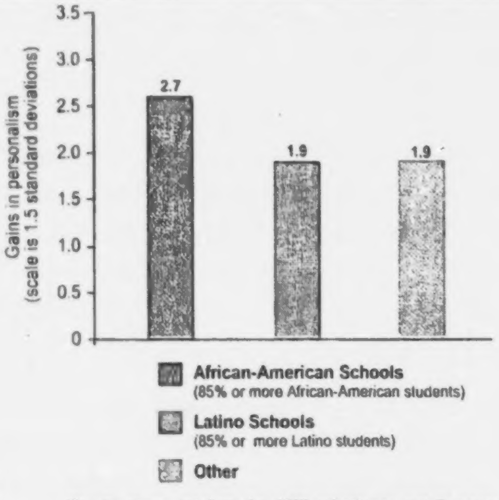
In the previous chapter, we found that students with the highest risk of being retained had slightly smaller adjusted test-score gains, on average, in Summer Bridge, and that students in very low-achieving schools also had smaller test-score gains. Students at high, moderate, or low risk of retention, however, did not differ substantially in their assessment of summer school. There was little difference across all three measures derived from student survey responses by school-level achievement or by their prior test scores. Eighth graders at high and moderate risk of retention had less change in their perception of personal support from teachers than students at low risk. These results were moderate in size, however, and were not reflected in other indicators.

A consistent pattern in this analysis was that males were more negative about the personal environment of Summer Bridge. Boys in both the sixth and eighth grades were more negative in their overall assessment of the program and showed less of an increase in their perceptions that teachers showed them personal support.[5] In the previous chapter, we also found that boys had lower test-score gains in mathematics. Thus, boys do appear to be having somewhat different experiences in the program. One interpretation of this pattern is that boys are less likely to be motivated by the threat of retention and less likely to view the focused environment as a positive experience. For example, it is possible that girls, on average, perceive increased attention from teachers differently than boys. Boys may be less likely to perceive pressure from teachers as supportive. An alternative explanation is that teachers are actually treating boys and girls differently and that girls are getting more support than boys.

In the previous chapter, we found that students in predominantly African-American schools had larger test-score gains, on average, than students in predominantly Latino, mixed race, and integrated schools. We also found that eighth graders in predominantly African-American schools had larger increases on the measure of personal attention from teachers than those in predominantly Latino schools, and that eighth graders in African-American schools perceived Summer Bridge more positively (see Figures 3-4 and 3-5). We do not know whether the differences in students' experiences across schools reflect differences in their motivational responses or differences in teacher behavior and classroom environments.

FIGURE 3-4

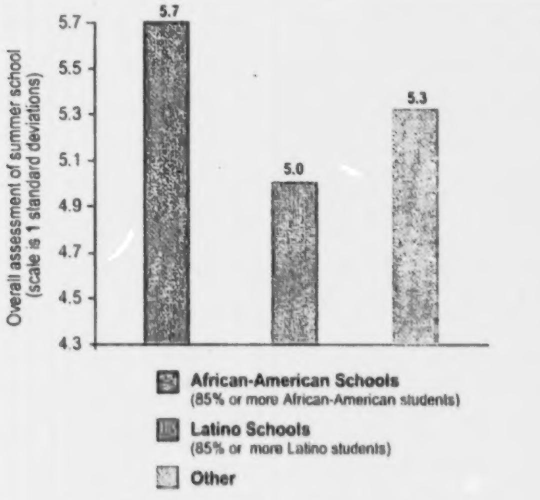
Eighth Graders in African-American Schools Show a Larger Increase in Personalism in Summer Bridge than Eighth Graders in Other Schools



Results shown are from the 1999 school-year and Summer Bridge surveys after controlling for student and school characteristics. Results for sixth graders are similar.

FIGURE 3-5

Eighth Graders in African-American Schools Are More Positive about Summer Bridge than Those in Latino Schools



Results are from the 1999 Summer Bridge survey. Results for sixth graders are similar.

What Have We Learned?

In many ways, these findings about Summer Bridge students should not be surprising. First, small class size provides teachers with more opportunities to pay attention to individual students. The fact that students and teachers are working toward a common goal with a focused set of instructional objectives may also have led students to feel they were receiving more attention during Summer Bridge than the regular school year. Research on motivation has found that classrooms where teachers and students are working under the pressure of external assessments have lower levels of anti-academic peer norms and increased peer support for achievement when compared to control classrooms.[6] There is some evidence that low-achieving students respond positively when an evaluation is based on predetermined scores that focus on self-improvement and on which progress is measurable and can be charted over time.[7] Thus, one hypothesis is that students were positive about Summer Bridge because it provided them more focused academic support in a more personalized environment around a goal that they cared about.

A second hypothesis is that Summer Bridge is a more effective learning environment for students not because of the extra support it provides, but because the pace and structure of the program better meet the learning needs of low-achieving students. Our qualitative interviews suggest that low-achieving students felt more supported in Summer Bridge because the pace and level of instruction were geared to their skills rather than to those of their higher achieving peers. In addition, Summer Bridge may also provide a more focused instructional environment leading to higher levels of academic press. Since students were attending Summer Bridge for only three hours per day and receiving instruction in only two subjects, they may have felt it was more fast paced and focused, leading to the impression that they worked harder in the summer with less down time and interruptions. This suggests that students were working harder and felt like they were learning more in Summer Bridge because teachers may have provided them the support, structure, and challenge they lacked during the school year. Thus, it is possible that students were working harder and were getting more attention in Summer Bridge because teachers were providing more focused instruction and keeping students on task. In the next two chapters, we focus on these issues.

Charles Crites

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CHAPTER 4

Teachers' Views

In many ways, teachers in the CPS Summer Bridge program face a daunting task. They are asked to take a group of students who have just failed to meet the test-score cutoffs and find a way to raise their scores for promotion in only six weeks. Nonetheless, the program does provide teachers two advantages over the school year: a highly structured curriculum and small class size. This chapter looks at Summer Bridge teacher surveys conducted in 1999 and teacher interviews conducted during the program in 2000 to address four main questions. First, how did teachers assess the quality and usefulness of the Summer Bridge curriculum? Second, how did teachers attempt to meet their students' needs? Third, were there elements of the program or characteristics of the teachers themselves that influenced teachers' practice and perceptions? And, finally, is there evidence that teacher characteristics and practices and school characteristics are associated with students' test-score gains in Summer Bridge?

Teacher Assessments of the Summer Bridge Curriculum

The prescribed Summer Bridge curriculum can be viewed as either a support or a hindrance. It may provide a much needed break for teachers who, after teaching all year, do not need to design curricula or lesson plans for summer. The lesson plans and materials certainly make teaching in the program easier and provide guidance for raising students' scores. On the other hand, a mandatory curriculum could be perceived as a limitation by teachers if they do not believe that it will meet students' instructional needs or if they dislike its structure or content.

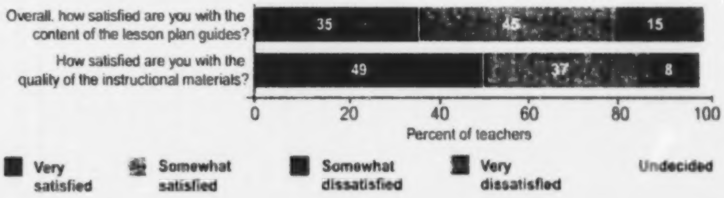
Teachers were asked about three aspects of the Summer Bridge curriculum on the 1999 surveys: the appropriateness of the content and quality of the instructional materials, the match between the materials and student ability, and the pacing of the lesson plans.

Appropriateness of Content and Quality of Materials

Teachers were very positive about the content of the Summer Bridge curriculum and the quality of its instructional materials. Eighty percent of teachers surveyed reported being somewhat to very satisfied with the content of the lesson plan guides (see Figure 4-1). Eighty-six percent of teachers were somewhat to very satisfied with the quality of the materials. When asked about the reading and mathematics curricula, most teachers agreed that the materials were "useful and appropriate" and that the curriculum was "well organized and of high quality" (see Figure 4-2). Teachers were more positive about the mathematics curriculum than reading.

FIGURE 4-1

Summer Bridge Teachers Were Satisfied with the Lesson Plan Guides and Instructional Materials



Results are from the 1999 Summer Bridge teacher survey.

Although they were positive about the quality of the instructional materials, teachers were less inclined to report that the materials were useful for meeting their students' needs. For example, nearly half of teachers stated that they were very satisfied with the quality of the materials, but only 12 percent strongly agreed that "the reading materials were useful and appropriate." These differences suggest that although teachers may have been positive about the overall focus of the curriculum, they were less sure about whether the materials were at the appropriate level for their students.

Match to Students' Skills

We looked at teachers' assessments of the match between the materials and students' needs by asking teachers if they felt that the curriculum was too difficult or

Data Used in this Chapter

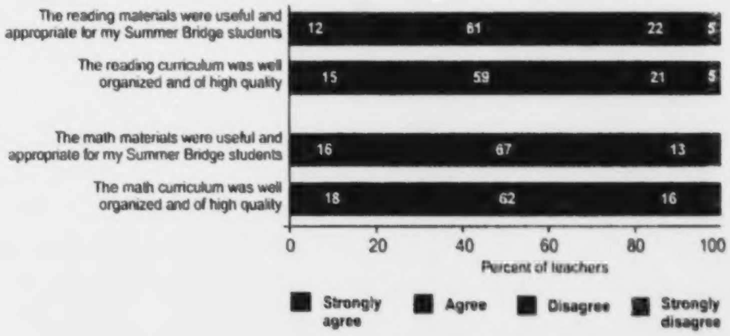
This chapter draws on two primary sources of data: surveys of Summer Bridge teachers conducted in 1999 and in-depth interviews conducted with teachers during Summer Bridge in 2000. The interviews were part of our larger qualitative study of Summer Bridge in which we observed classrooms in 12 schools (roughly one teacher in each of the third, sixth, and eighth grades) over the course of the summer. At the end of the program, teachers who were observed were interviewed, resulting in a total of 37 complete interviews (four teachers declined to be interviewed). Interviews lasted approximately 45 minutes to an hour. The interview protocol included questions in the following three areas: first, information about students—number of students, absences, tardiness, students' level of risk, students' academic needs and how the teacher chose to address those needs, and student motivation; second, questions about the curriculum—whether it was at the right level for students, quality of both reading and mathematics lessons and materials, pacing, and whether teachers felt they had time to work individually with students; and third, whether teachers felt they had adequate support to teach in Summer Bridge—questions about monitors, whether teachers had tutors/aides, and whether teachers had adequate training and had received materials prior to the start of the program.

too standardized, and whether they supplemented it with other materials. About 30 percent of teachers agreed that the reading curriculum was too difficult (see Figure 4-3). Nearly half (48 percent) agreed or strongly agreed that the reading materials were too standardized. Teachers felt that the curriculum was less aligned with the needs of their lowest skilled students. Over half (57 percent) agreed that they "supplemented the curriculum with more basic activities and/or materials." A far smaller proportion, 26 percent, reported supplementing with more advanced materials.

Third-grade teachers were somewhat less positive about the reading curriculum. Over one-third of third-grade teachers felt that the reading curriculum was too difficult for their students and over half agreed or strongly agreed that it was too standardized to meet individual students' needs (see Figures 4-4 and 4-5). We might expect third-grade teachers, who were most likely to report that the curriculum was difficult for their students, to have reported supplementing at higher

FIGURE 4-2

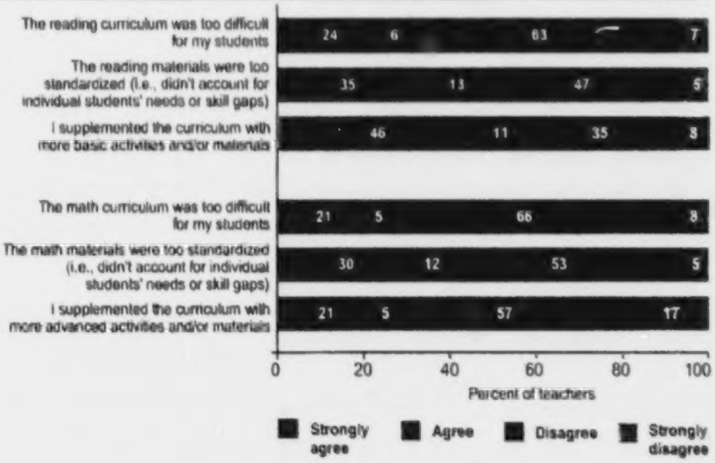
Summer Bridge Teachers Were Positive about the Curriculum and Materials but Had Concerns about Whether They Were Appropriate for Some Students



Results are from the 1999 Summer Bridge teacher survey.

FIGURE 4-3

Summer Bridge Teachers Were Less Positive about the Curriculum and Materials but Had Concerns about Whether They Were Appropriate for Some Students

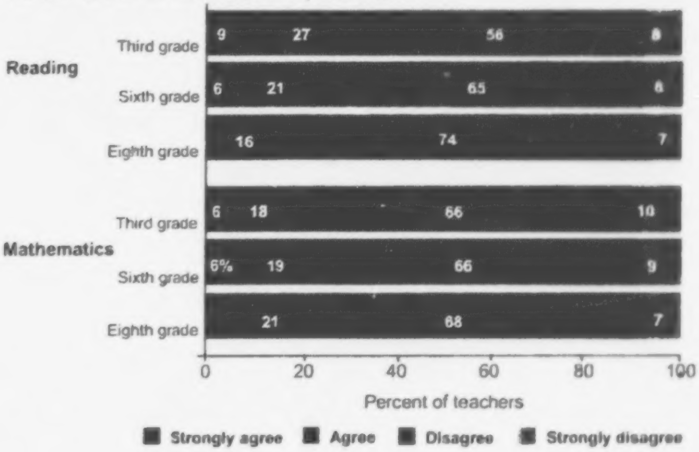


Results are from the 1999 Summer Bridge teacher survey.

FIGURE 4-4

Summer Bridge Teachers Did Not Think the Reading and Mathematics Curricula Were Too Difficult

The curriculum was too difficult for my students . . .

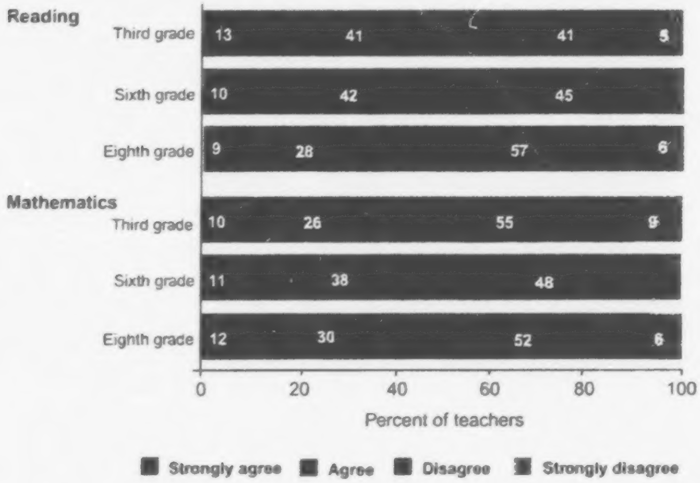


Results are from the 1999 Summer Bridge teacher survey.

FIGURE 4-5

Summer Bridge Teachers Differed in Terms of Whether They Thought the Curricula Were Too Standardized

The reading and mathematics curricula were too standardized



Results are from the 1999 Summer Bridge teacher survey.

rates. However, fewer than half (46 percent) of third-grade teachers reported supplementing the curriculum with more basic materials, compared with approximately two-thirds of sixth- and eighth-grade teachers (see Figure 4-6).

Assessment of Pacing

Teachers are expected to follow the prescribed pacing of the daily lesson plans and monitors visit classrooms to ensure that teachers cover the material and maintain the pace. This process should help ensure that students are exposed to content and practice a range of skills. At the same time, teachers may feel frustrated if the pace they are expected to maintain does not fulfill what they believe their students need.

Teachers' assessments of the curriculum's pacing were mixed. Only about half (55 percent) of teachers in all three grades were satisfied with the pacing of the lesson plans (see Figure 4-7). Similarly, 56 percent of all teachers agreed that they could not cover all of the materials and topics required (see Figure 4-8). Thus, for about half of teachers, the pacing of the Summer Bridge curriculum was too fast.

In general, survey results tell us that Summer Bridge teachers were very positive about the overall content of the curriculum and the quality of the instructional materials. Teachers were less positive about their ability to meet diverse student needs with a one-size-fits-all curriculum, and many reported supplementing with more basic materials. Finally, about half of teachers disliked the pace of the lessons and reported that they could not cover all of the topics required. As pacing is the aspect of the Summer Bridge curriculum where teachers had the least flexibility, it is not surprising that many disliked having little control in this area.

Meeting Individual Students' Needs: The Role of Class Size and Teacher Strategies

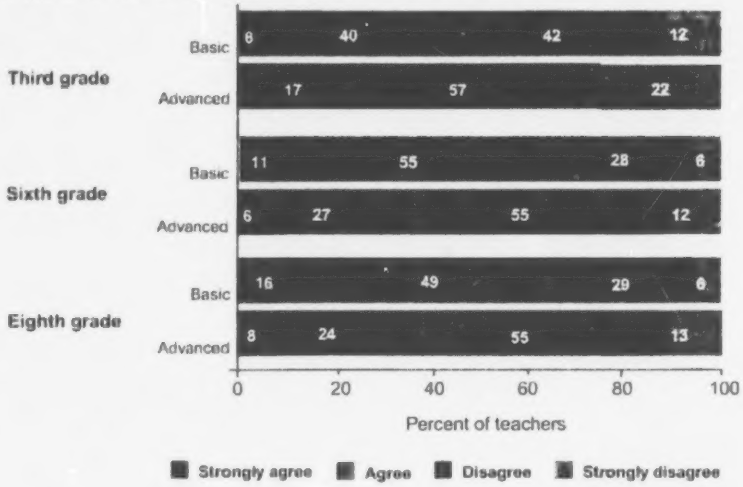
Perhaps because many teachers felt that the Summer Bridge curriculum was too standardized, over three-quarters reported that they attempted to "tailor instruction to the individual strengths and weaknesses" of their Summer Bridge students (see Figure 4-9). Interviews and surveys suggest that teachers used three primary strategies to accomplish this: capitalizing on small class sizes to provide more personal attention to students, allotting more class time for reading than mathematics, and providing extra work outside of class for students who need more practice.

In interviews, most teachers said they appreciated that their Summer Bridge classes were substantially smaller than their

FIGURE 4-6

Sixth- and Eighth-Grade Teachers Were More Likely to Supplement the Curriculum with More Basic Materials

I supplemented the curriculum with more basic/advanced activities and/or materials

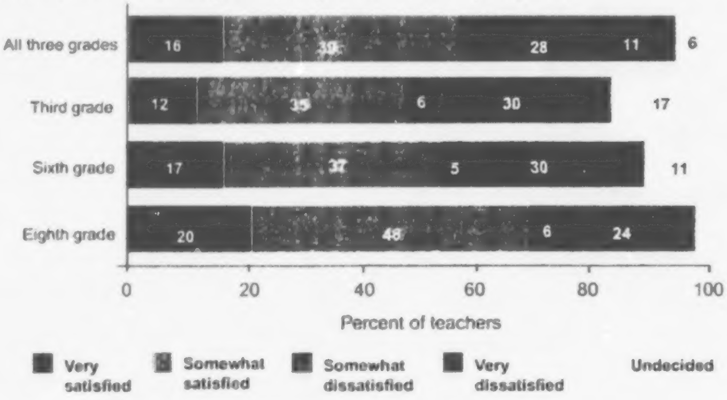


Results are from the 1999 Summer Bridge teacher survey.

FIGURE 4-7

Summer Bridge Teachers' Assessments of the Pace of the Curriculum Were Mixed

Overall, how satisfied are you with the pace of the lesson plan guides?



Results are from the 1999 Summer Bridge teacher survey.

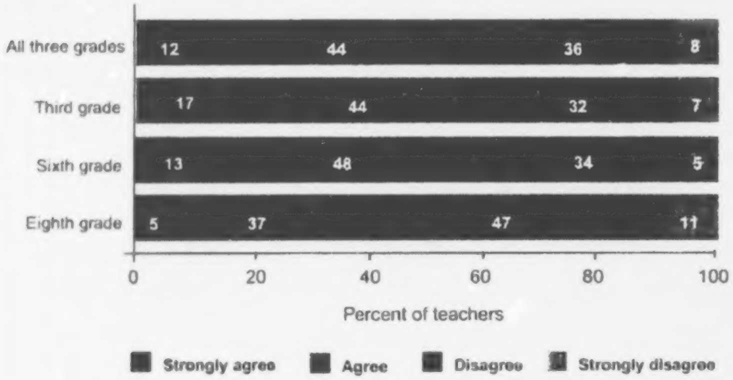
school year classes. Teachers emphasized that the reduced class size was critical in allowing them to pay more attention to individual students. One sixth-grade teacher exemplified this theme. When asked to characterize what students got from their experience in Summer Bridge, she replied:

> More attention, first of all. Children blossom with the attention because it's like they see that, wow, this teacher really cares. It's not that the teacher doesn't care during the regular school year, she just doesn't have the time. I know for intermediate grades, we don't have helpers or assistants. And we don't have that kind of time and those kinds of resources [during the school year]. And they really love that extra time, and the teachers, I mean it's a whole attitude. They're like, "Wow! I can sit down and I can talk to student A or student B without saying, "Oh, I'll get back to you later," or "Write it down and I'll address it later." If they have a question now, I say, "Ok, hold on. Here I come," or "Come up to my desk." We can address it right then and there so the child gets the attention and the instruction that they need. That's the best thing about the summer program. Class size is smaller, is more concentrated, and it's a no nonsense approach. No behavior problems; none of that is tolerated in summer school. You get their attention, you get the instruction without any interruption.

FIGURE 4-8

More Than Half of Teachers Agreed They Could Not Cover All of the Materials and Topics in Summer Bridge

I could not cover all the materials and topics required

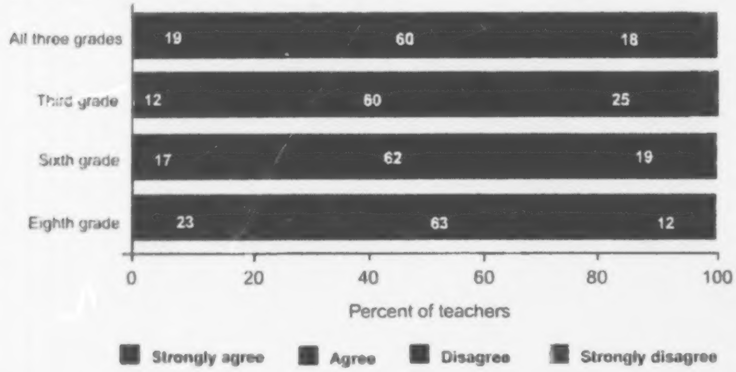


Results are from the 1999 Summer Bridge teacher survey.

FIGURE 4-9

Over Three-Quarters of Summer Bridge Teachers Reported Tailoring Their Instruction

I tailored my instruction to the individual strengths and weaknesses of my Summer Bridge students



Results are from the 1999 Summer Bridge teacher survey.

This teacher mirrored students' perceptions of increased personalism in Summer Bridge by explaining that a smaller class allowed her to create a classroom environment where students saw that she cared and where she could provide extra attention and focused instruction. In interviews, teachers also mentioned that smaller class sizes allowed them to group students for instruction more easily, reduce behavior problems, improve classroom management, and better monitor students' academic performance.[1] The small class sizes in Summer Bridge appeared to counterbalance what teachers felt was the curriculum's weakness: lack of flexibility to meet student needs.

A second way that teachers tailored instruction in Summer Bridge was by spending more time on reading than mathematics, either with the entire class or with specific groups of students. Many teachers we interviewed noted that the majority of their students needed to meet the test-score cutoff in reading but not in mathematics. They were also told in their training that they could spend more time on reading. Teachers shifted the focus to reading in several ways. Some simply spent more time on reading throughout the summer, while others spent more time on reading only when they felt that their students needed it. As one teacher explained, "If the majority of the children need reading more than math, we've been told to spend more time on the reading. So I do spend maybe 10-15, 20 minutes extra with the reading. I just go with the flow where I feel they need more help."

Some teachers also used grouping to adjust time spent on reading and mathematics for students' individual needs. For example, several teachers reported that during the mathematics lesson, they asked an aide to do extra reading with students who had already met the cutoff in mathematics.

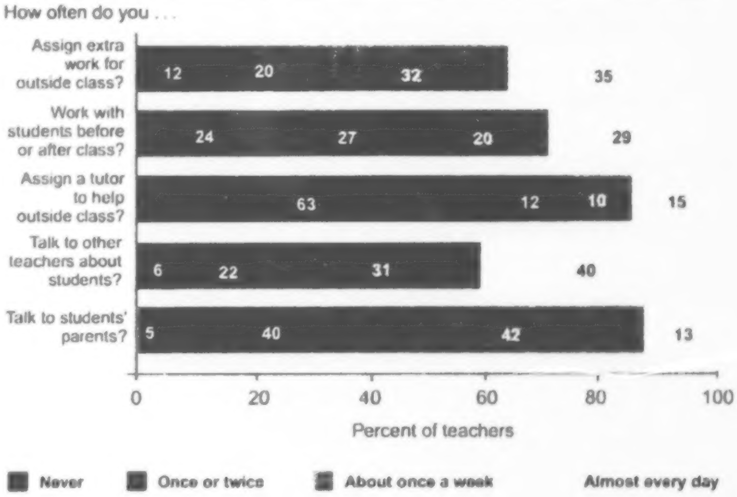
The third way that many teachers attempted to meet individual students' needs was to provide extra work for, and attention to, students outside of class time. Given the high-stakes nature of Summer Bridge, students certainly had an incentive to do extra work if teachers provided it. On the 1999 Summer Bridge survey, we asked teachers to report the extent to which they provided extra time or work for individual students outside of class. Over two-thirds of teachers reported that they assigned extra work for individual students (in addition to regular homework) at least once a week (see Figure 4-10). About a third reported giving individual students extra work almost every day. About half also reported that they worked with students before or after class on a regular basis (about once a week or more). Approximately 30 percent did so on a daily basis.

Teachers were less likely to use tutors to work with students outside of class time than they were to assign extra work or work with students themselves. Only about a quarter reported having tutors work with students outside of class once a week or more.

Teachers in Summer Bridge often sought out other teachers for information regarding their students. Indeed, 40 percent of Summer Bridge teachers reported that they talked to other teachers about their students on a daily basis. Also, about half of teachers in Summer Bridge reported talking to students' parents regularly.

FIGURE 4-10

Summer Bridge Teachers' Reports of How Often They Extended Effort beyond the Classroom



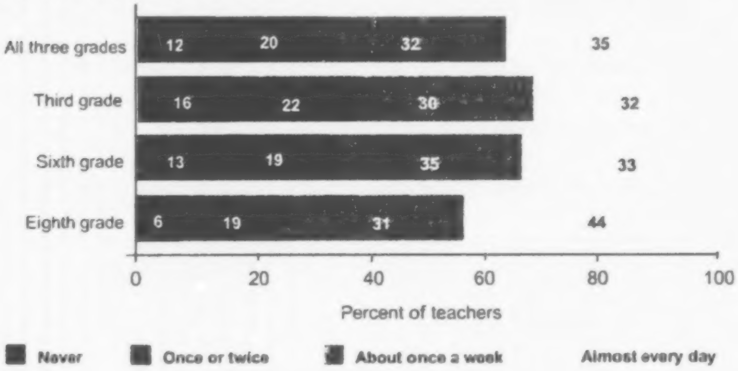
Results are from the 1999 Summer Bridge teacher survey.

Eighth-grade teachers were the most likely to report providing extra work or help to students. Forty-four percent of eighth-grade teachers, compared with about one-third of third- and sixth-grade teachers, reported assigning extra work for students outside of class every day (see Figure 4-11). Eighth-grade teachers were slightly more likely to report working with students before or after class (see Figure 4-12). Third-grade teachers reported providing the least extra work for students. Given that third-grade teachers were also slightly less likely to supplement the curriculum, it is not surprising that they were less likely to report that they provided tailored instruction.

FIGURE 4-11

Eighth-Grade Teachers Were the Most Likely to Assign Extra Work to Their Students

This summer how often did you assign extra reading or provide extra work for individual students outside of school?

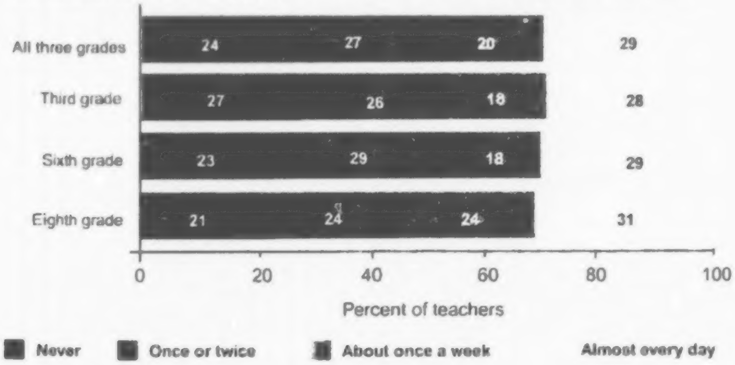


Results are from the 1999 Summer Bridge teacher survey.

FIGURE 4-12

Eighth-Grade Teachers Were More Likely to Report Spending Time out of Class Working with Students

This summer how often did you work with students individually before or after class?



Results are from the 1999 Summer Bridge teacher survey.

The Role of Supports in Shaping Teacher Practice and Perceptions

What school and classroom characteristics shape teacher practice in Summer Bridge? As we saw in Chapter 1, some teachers knew many of their Summer Bridge students before the summer, while others knew very few. In interviews, some teachers mentioned that they felt more efficacious when working with students whom they knew during the school year. For example, one teacher explained that she felt hampered when helping the two students in her class who she knew the least.

> **Interviewer:** You know, I've noticed in class the little boy you've mentioned, he does seem to have trouble reading. How do you deal with that as a teacher, when you've got different levels of ability in your grade?
>
> **Teacher:** And especially the two children I don't know that well. Whereas the other children who I've worked with for a couple years, I know their strengths and weaknesses. But now, with this little fella who is here just for the summer, we read—his oral reading is good—but the comprehension is not good at all. If I stand next to him and I have him read or even do the math, he does it very well. But on his own, in-

> dependently, he doesn't perform as well. I don't know him as well; I don't know what the emotional problems are, and I just try to give him as much help as I can without spending the whole time with him.

How student and school performance influenced teacher practice in Summer Bridge is an open question. On the one hand, we might expect teachers with the lowest skilled students or in the lowest performing schools to be the least positive about the Summer Bridge curriculum because of its grade-level content and prescribed pace. On the other hand, teachers and students in low-performing schools may benefit from having a rich set of instructional materials and a more focused environment. If this is the case, we would expect Summer Bridge teachers in low-performing schools to be positive about the curriculum and learning environment of Summer Bridge.

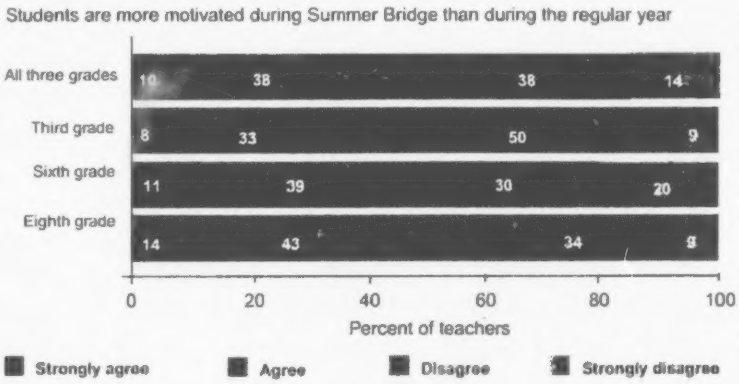
Finally, we expect that teacher behavior may differ across grades. Eighth-grade students face the most severe consequence if they do not meet the cutoffs in Summer Bridge—they do not move on to high school. It is likely that eighth-grade teachers would have the most motivated students and might be willing to exert extra effort on their behalf (see Figure 4-13). A curriculum focused on skills geared toward ITBS content might be a good fit for these teachers because it concentrates on what their students need to learn to graduate. Third-grade teachers, on the other hand, may face a more difficult task because they are trying to teach a grade-level curriculum to students who are less likely to have mastered the basic skills necessary to handle the reading comprehension skills central to the ITBS.

We conducted a multivariate analysis to examine the classroom characteristics that shaped teachers' assessments of the curriculum, their efforts to meet students' needs, and their overall evaluation of the learning environment in Summer Bridge (see the HLM model described in Appendix H). For this analysis, we created three summary measures based on the survey items presented in this chapter. The first measure, "teachers' evaluations of the Summer Bridge curriculum," combines teachers' responses to questions about the Summer Bridge curriculum and its match with students' needs. The second measure, "individualized effort beyond the classroom," combines information on the extent to which teachers sought to supplement and tailor the curriculum and the extent to which teachers provided extracurricular support for students. The third measure, "assessment of Summer Bridge learning environment," draws on teachers' assessments of student motivation in Summer Bridge as well as their assessments of the learning environment in the program.

For each measure, we examined how teacher reports varied by school characteristics (racial composition and school year achievement), by characteristics of Summer Bridge classrooms (class size, the percentage of students the teacher knew before summer, whether the classroom had a

FIGURE 4-13

About Half of Summer Bridge Teachers Reported That Students Were More Motivated in Summer Bridge Than during the School Year



Results are from the 1999 Summer Bridge teacher survey.

Summer Bridge Teacher Measures

Three measures, "teachers' evaluation of the Summer Bridge curriculum," "individualized effort beyond the classroom," and "assessment of Summer Bridge learning environment," were created using items from the 1999 Summer Bridge teacher survey.

Assessment of Summer Bridge Learning Environment

- Students are more motivated during Summer Bridge than during the regular year.
- I feel that I have a better chance to improve student learning during the summer.
- The atmosphere in Summer Bridge is more conducive to learning than during the regular year.
- Students learn at a quicker pace in Summer Bridge than during the school year.

Evaluation of the Summer Bridge Curriculum

- Overall, how satisfied are you with the content of the lesson plan guides?
- Overall, how satisfied are you with the quality of the instructional materials?
- Does the variety of instructional materials help to meet diverse student needs?
- The Summer Bridge curriculum is too rigid for my regular teaching style.
- The reading curriculum was well organized and of high quality.
- The math curriculum was well organized and of high quality.
- The reading curriculum was too standardized (i.e., did not account for individual students' needs or skill gaps).
- The mathematics curriculum was too standardized (i.e., did not account for individual students' needs or skill gaps).

Individualized Effort beyond the Classroom

This summer, how often did you:

- Work with students individually before or after class?
- Talk to a student's parents about his/her work?
- Assign extra reading or provide extra work for individual students outside of school?
- Assign a tutor/aide to work with a student outside of class time?
- Talk to other teachers about students' performance?

- I got to know my Summer Bridge students as well as my students during the regular school year.
- I tailored my instruction to the individual strengths and weaknesses of my Summer Bridge students.
- I supplemented the curriculum with more basic activities and/or materials.
- I supplemented the curriculum with more advanced activities and /or materials.

tutor, and the achievement level of the class), and by grade.[2] We also took into account teachers' years of experience and educational attainment, whether they had taught Summer Bridge before, and the subject they taught during the school year.

Knowing a large proportion of students, having a tutor, and small class size are all resources that would provide teachers the opportunity to build relationships with their students and provide individualized attention. These first two resources were strongly and positively associated with teacher assessments of the curriculum in Summer Bridge (see Figure 4-14). Teachers who knew more of their students, had a tutor, and had small class size were more likely to report adapting instruction to meet their students' needs (see Figure 4-15). These teachers were also more positive about the overall learning environment in Summer Bridge as compared to the school year (see Figure 4-16).

Teachers who knew a large proportion of their students may have been more positive about the learning environment in Summer Bridge because it was easier to adapt the curriculum to meet students' needs. At the same time, knowing their students may have given them a better reference point for recognizing heightened motivation during Summer Bridge compared to the school year. For example, over half (56 percent) of teachers who knew a high proportion of their students agreed with the statement that "students were more motivated in Summer Bridge than during the school year," compared to only 41 percent of teachers who knew very few of their Summer Bridge students.

The adult-to-student ratio also seemed to shape teachers' experiences and practice in Summer Bridge. Teachers who had tutors were more positive about both the curriculum and the learning environment in the program, and were more likely to provide individualized support for students in and outside of

FIGURE 4-14

In Classrooms Where Teachers Had a Tutor, They Were Much More Positive about the Summer Bridge Curriculum

Effects of Program Characteristics on Teachers' Evaluations of the Summer Bridge Curriculum

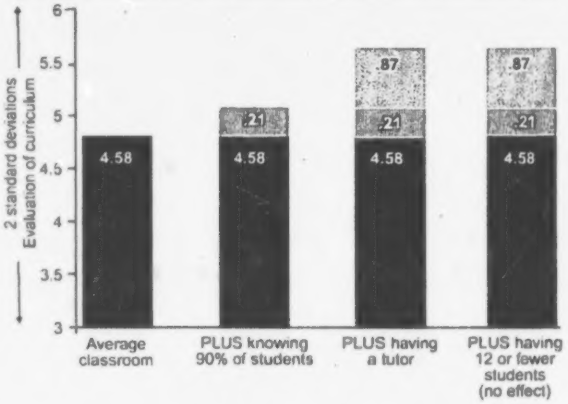
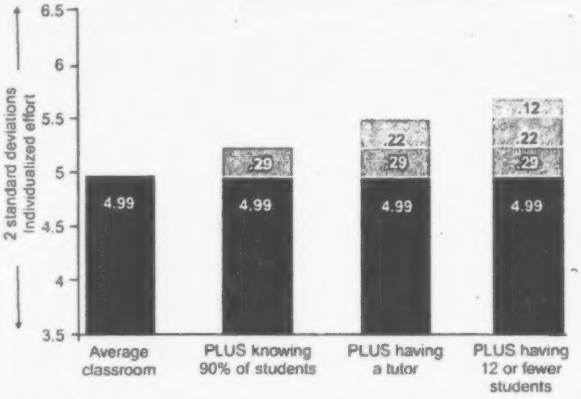


FIGURE 4-15

Summer Bridge Teachers Who Knew More of Their Students and Had a Tutor Were More Likely to Provide Extra Help to Students

Effects of Program Characteristics on Individualized Efforts beyond the Classroom

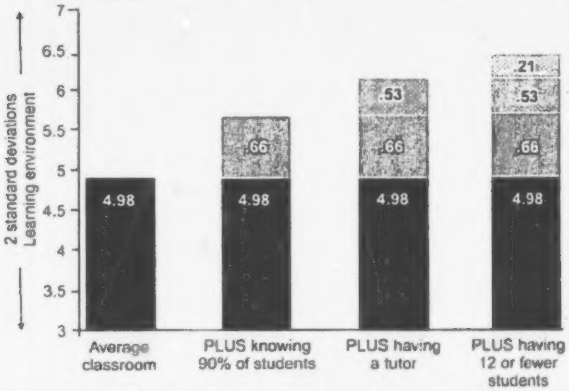


In the average Summer Bridge classroom in 1999, the teacher knew 44% of students before Summer Bridge, no tutors were available, and 13 to 17 students attended. Data are from 1999 Summer Bridge teacher survey. Results are based on HLM analysis described in Appendix H.

FIGURE 4-16

Teachers Were More Positive about the Learning Environment in Summer Bridge When They Knew Their Students and Had a Tutor

Effects of Program Characteristics on Assessment of Summer Bridge Learning Environment



In the average Summer Bridge classroom in 1999, the teacher knew 44% of students before Summer Bridge, no tutors were available, and 13 to 17 students attended. Data are from 1999 Summer Bridge teacher survey. Results are based on HLM analysis described in Appendix H.

class time. Even with Summer Bridge's relatively small class sizes, variation in class size mattered, though the effects are small. Teachers with very small classes reported providing more individualized instruction and noted a more positive learning environment.

Differences across Schools and Classrooms in Teacher Practice and Assessments

There was not a strong relationship between the learning gap (the amount that students needed to increase their test scores) that students faced in Summer Bridge and teacher assessments of the curriculum, the learning environment, and their work with students. Teachers in schools where the average student was far below the cutoffs were just as positive about the Summer Bridge curriculum and learning environment as teachers in schools where the average student was closer to the cutoffs.

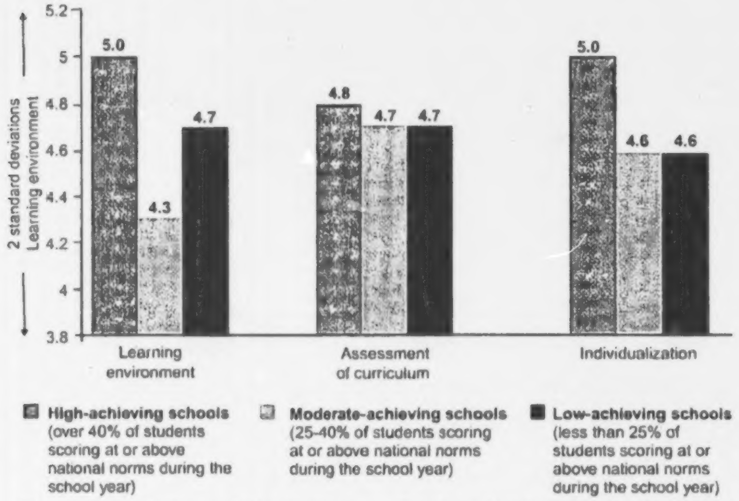
School-level achievement, however, was strongly associated with teacher reports on the three measures. Teachers in schools with higher achievement were much more likely to report providing individualized support to students and to feel that the atmosphere of Summer Bridge was conducive to student learning (see Figure 4-17). This was true even after we accounted for differences in class size, teacher characteristics, achievement, and racial composition. In Chapter 2, we saw that students in high-achieving schools also had larger learning gains in Summer Bridge. Thus, it appears that not only did Summer Bridge students learn more in schools with high school year achievement, but teachers in these schools also reported more effective environments and greater attention to individual students.

Teacher reports on each of the three measures also differed significantly across grades. Eighth-grade teachers, in general, were more positive about the Summer Bridge curriculum and reported a greater focus on providing attention to individual students. The largest across-grade differences occurred in teacher assessments of the overall learning environment in Summer Bridge. Again, we might expect eighth-grade students to be more motivated and to change their behavior the most in Summer Bridge because they face the greatest cost in failing to meet the cutoffs. Motivation is also more likely to play an important role in shaping the behavior of older students than that of their younger peers.

Some of these across-grade differences, however, may also be shaped by the fact that eighth-grade teachers were more likely to know a large proportion of their students. We examined across-grade differences in teacher responses both with and without accounting for differences across grades in the proportion of students that Summer Bridge teachers knew. About one-third of the difference between third- and eighth-grade teacher assessments of the curriculum and learning environment in Summer Bridge is explained by the fact that eighth-grade teachers knew more of their students before the start of the program.

FIGURE 4-17

Teachers in Schools with Higher Achievement Were More Positive about the Summer Bridge Learning Environment and Reported Providing More Individualized Instruction



Data are from 1999 Summer Bridge teacher survey. Results are based on HLM analysis described in Appendix H. Results shown are after controlling for student and school characteristics.

Did Teachers' Connections to Students and Level of Individualization Affect Learning?

Thus far, our analysis suggests that an important difference between teachers in Summer Bridge and teachers in the regular school year was the extent to which Summer Bridge teachers tailored the curriculum to students' needs and went beyond classroom time to give extra assignments and work with students. Because teachers who were acquainted with their students were more likely to employ these teaching strategies, one policy implication of this analysis is the importance of recruiting teachers who have prior knowledge of their summer students. Other policy implications are derived from the benefits of providing supports for teachers such as tutors and small class sizes. A final question remains: Do these relationships, behaviors, and programmatic components affect learning gains in Summer Bridge?

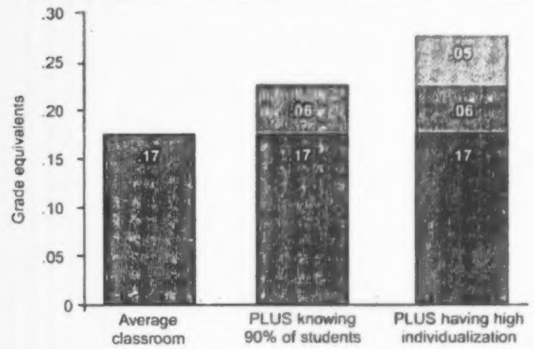
Using a multivariate analysis, we examined how learning gains in each grade varied by teacher reports on the proportion of their students they knew before the program and by their emphasis on individualizing instruction. This analysis controlled for Summer Bridge class size, differences across schools in racial composition and achievement, teacher characteristics, and student characteristics. Unfortunately, we cannot link individual teachers to their students for this analysis. Our analysis correlates adjusted Summer Bridge test-score gains for each grade with the average teacher reports within schools and grades. For example, in the eighth grade at School X, we examine the correlation between the average adjusted learning gain for eighth graders with the average of teacher reports in the eighth grade. As we saw in Chapter 1, many schools ran multiple Summer Bridge classrooms. Thus, our estimates of the association between teacher reports and learning gains should be considered the lower bound of the estimate since we are measuring teacher and student links with some error.

In all three grades, adjusted learning gains in reading were significantly greater in schools where teachers reported knowing a larger proportion of their students before Summer Bridge (see Figures 4-18a, 4-18b, and 4-18c). For example, we estimate that in the eighth grade, the average adjusted Summer Bridge reading gains in a school where teachers knew 90 percent of their students would be 1.6 months higher than the reading gains in an eighth grade where the teacher knew an average number (44 percent) of her students. This large effect occurs even after we control for the demographic and achievement characteristics of students

FIGURE 4-18A

Students Had Larger Test-Score Gains When Teachers Provided More Individualized Instruction and Knew Them before Summer Bridge

Third-Grade Adjusted Summer Bridge Reading Gains

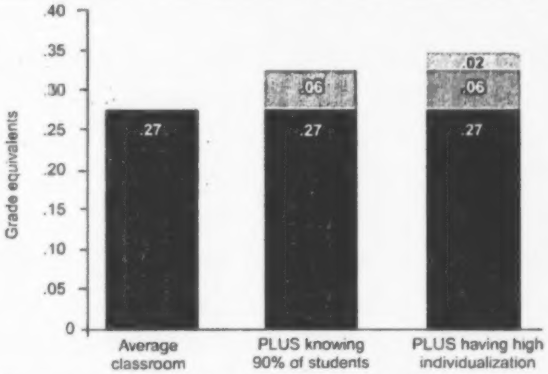


Both characteristics are significant at the 90% level.

FIGURE 4-18B

Students Had Larger Test-Score Gains When Teachers Provided More Individualized Instruction and Knew Them before Summer Bridge

Sixth-Grade Adjusted Summer Bridge Reading Gains



"Knowing students" is significant at the 95% level. Individualization is not significant here.

and schools, teachers' qualifications, class size, and teacher reports of individualization. The effect appears larger in eighth grade than in third.

Higher scores on individualized effort beyond the classroom were also associated with larger test-score gains in Summer Bridge. Thus, there is evidence that the Summer Bridge program was enhanced when teachers worked to adapt and supplement the curriculum to meet their students' needs, and when they extended their efforts beyond class time.

There was no independent effect of class size on adjusted learning gains, perhaps reflecting the fact that there was little variation in class size in Summer Bridge, nor was there an association between tutors and adjusted learning gains.

Critical Findings and Questions

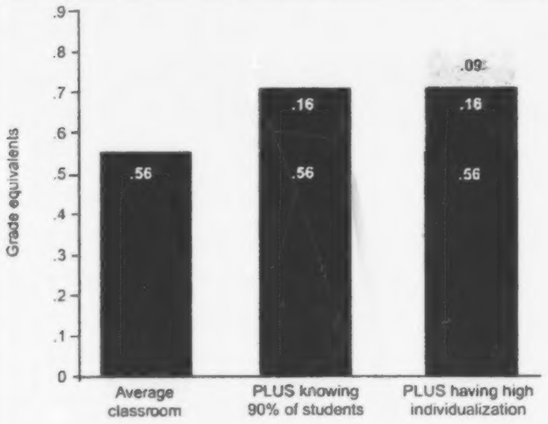
Teachers were positive about the curriculum, materials, and small class size. In general, both interviews and surveys indicate that teachers were positive about the content of the Summer Bridge curriculum and materials. Teachers were also positive about the small class sizes. On the 1999 surveys, we asked teachers why they thought students who had made progress in Summer Bridge did so. Summer Bridge teachers most often attributed student progress to additional exposure to content (58 percent), small class size (55 percent), and taking the test more seriously (43 percent). These choices suggest that teachers were positive about three of the primary components of the program—its curricular foci, small class size, and its high-stakes approach.

Survey responses suggest that teachers were less inclined to say that the curriculum and structure of the program allowed them to do enough to meet diverse student needs. Interestingly, relatively few teachers reported feeling that the curriculum was too difficult. Rather, teachers' responses suggest that although they generally thought the curriculum was appropriate, a sizeable number stated its "one size fits all" approach and fast pacing did not allow them to meet the needs of struggling students. One critical question to consider is whether these teacher responses reflect a general reluctance to employ a mandatory curriculum or whether they reflect the particular content and structure of the Summer Bridge curriculum.

FIGURE 4-18C

Students Had Larger Test-Score Gains When Teachers Provided More Individualized Instruction and Knew Them before Summer Bridge

Eighth-Grade Adjusted Summer Bridge Reading Gains



"Knowing students" is 99% significant. Individualization is 90% significant.

For Figures 14A, B, and C. In the average Summer Bridge classroom, the teacher knew 44% of students before Summer Bridge, no tutors were available, and 13 to 17 students attended. Results are from 1999 Summer Bridge teacher survey and student test scores.

Differences in teachers' adaptation of the curriculum and assistance to students outside of class were associated with learning gains. There was significant variation in both the extent to which teachers adapted and supplemented the Summer Bridge curriculum and how they provided attention to individual students. Almost 80 percent of teachers reported that they tailored instruction to the individual strengths and weaknesses of their students, and over half supplemented the curriculum with more basic materials. Over two-thirds of teachers also reported regularly assigning extra work to students outside of class, while about half reported that they worked with students outside of class on a regular basis (once a week or more). What is important, however, is the extent to which these extra efforts are associated with adjusted learning gains in the program. Summer Bridge students who attended schools where teachers reported exerting extra effort had larger learning gains. An important policy question is whether such activities could be further encouraged, both in the Summer Bridge program and in summer programs in general. Summer Bridge teachers seem to have been highly sensitive to the messages they received in training about adapting the curriculum. For example, in interviews, teachers reported spending more time on reading than mathematics, a strategy that had been recommended in training sessions. Summer programs can send the message to teachers that meeting individual student needs is as important as covering the required content and could provide teachers extra supports and training in this area. We also find that extra supports, specifically the addition of tutors to classrooms, enhanced teachers' abilities to provide more individualized attention to students.

The most important finding in this chapter, however, is that there are strong associations between teacher efforts, staffing arrangements, and learning gains. Teachers who knew a large proportion of their students before Summer Bridge were more likely to report adjusting instruction to meet student needs and were more likely to work with students outside of class. In turn, high individualization was associated with larger test-score gains in the program. Teachers who knew more of their students may have been more likely to individualize and adjust the curriculum because they already had a relationship with students and because they may have felt more effective in identifying and meeting students' needs. In fact, even after we account for teacher reports of individualization and extra support, their prior knowledge of their students has a strong and direct association with Summer Bridge test-score gains.

Teacher assessments of Summer Bridge differed by school achievement, grade level, and by their prior knowledge of students. Finally, we find that teacher assessments of Summer Bridge mirrored patterns in our earlier analysis of learning gains. In Chapter 2, we found that third graders had smaller test-score gains in Summer Bridge than eighth graders. We also found that students in schools with higher school year achievement had larger test-score gains in the program. Similar differences were found in teachers' assessments

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of Summer Bridge. Eighth-grade teachers were more positive about the curriculum and reported greater attention to those behaviors—individualizing instruction and providing extra support outside of class—that were associated with greater test-score increases. Eighth-grade teachers were also the most positive about the Summer Bridge learning environment and were more likely to have known their students before the program. Third-grade teachers, on the other hand, were the most negative about the curriculum and were less likely to have known their students before the summer. Third-grade teachers were also less likely to supplement the curriculum or provide extra support to students. Thus, third-grade Summer Bridge teachers were the least likely to have characteristics and report practices that were associated with student learning gains.

John Booz

CHAPTER 5

A Closer Look at Instruction

In the previous chapter, we found that many teachers reported tailoring their instruction to meet students' needs. How much variation was there in Summer Bridge instruction? There are at least three ways that teachers might vary their instruction. First, they could differ in how much they used the curriculum and followed the daily lesson plans. Second, they could differ in how they enacted the curriculum. Although the Summer Bridge curriculum gave teachers a basic outline and suggested approaches for introducing topics, they did have flexibility in how to structure specific lessons, what skills to emphasize, and how to teach those skills. Third, teachers could differ in how they grouped students for instruction—the extent to which they had students work in small groups, individually, or as a whole class. In this chapter, we take a closer look at instruction in Summer Bridge, drawing on detailed classroom observations conducted in 12 schools in 2000. Was there variation in how teachers followed and used the Summer Bridge curriculum? Did the mandatory curriculum lead to more commonalities than differences in instruction? Finally, were differences in instructional environments across classrooms associated with differences in learning gains?

Teachers Followed the Daily Lesson Plans and Stayed on Topic

The 2000 Summer Bridge reading curriculum had 29 lessons for third and sixth graders and 34 for eighth graders. Classroom observations in the 12 schools began in the second week of the program and ran through the fifth week. Within those four weeks, researchers conducted approximately 140 observations in reading and mathematics (about 280 total), including 12 different daily lessons in each grade and subject. Thus, over the course of

Data Used in This Chapter

This chapter draws on results from a field study of classrooms in Summer Bridge during the year 2000. The field study was an intensive qualitative examination of instruction in Summer Bridge. Twelve schools were included, with each school assigned a field researcher. Researchers observed Summer Bridge reading and mathematics classes four times in one third-, sixth-, and eighth-grade classroom in each school for a total of approximately 140 observations in each subject. During class time, observers maintained a log of what occurred in the class, including detailed information about the content of the lessons, teachers' instructional style, how much time was spent on different activities, classroom configuration, classroom management, and student behavior. In-depth teacher interviews were conducted with 37 of the 40 participating teachers at the end of the summer. Interviews included questions about teachers' opinions of the level of their students' academic risk, class size, the curriculum and materials, and instructional strategies.

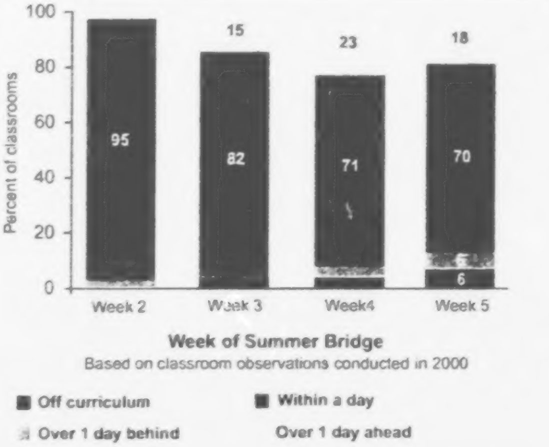
We selected pairs of one high-achieving and one low-achieving school that were from the same area and had similar demographics. In selecting the schools, we used empirical Bayes estimates of learning gains in mathematics and reading from a hierarchical linear model that controlled for school-level characteristics such as racial composition, achievement, percent of students excluded from testing, and percent of students meeting the promotional cutoff scores. Analysis also controlled for student characteristics, including socio-economic status, gender, race, age, and prior achievement.

the summer, we were able to track how many of the 40 teachers we observed kept pace with the reading curriculum by teaching the lesson intended for that day.[1]

Throughout the summer, over 90 percent of observed teachers remained on pace or taught the daily lessons at a pace faster than what was prescribed. In the second week of Summer Bridge, 95 percent were teaching the lesson plan assigned for that particular day or were within a day of that lesson. One teacher was over a day behind the expected pace, and one was over a day ahead. Despite the fact that in Chapter 4 we found that many teachers felt the pacing of Summer Bridge was too fast, by week five of the program, 18 percent of teachers were actually teaching a day or more ahead of the prescribed lesson, and 70 percent were within a day of the expected lesson (see Figure 5-1). In only four lessons over the summer were teachers "off curriculum," teaching content not prescribed in a daily lesson. In this very small proportion of lessons, teachers modified the content for a day or two because they felt their students had not quite grasped a concept or because they felt that the curriculum did not include adequate instruction on

FIGURE 5-1

Most Teachers Stayed on Schedule with the Daily Lesson Plans



Week 2 observations included 37 teachers; week 3, 34 teachers; week 4, 35 teachers; and week 5, 33 teachers.

an important topic. Thus, we find extensive evidence that teachers not only used the daily lessons, but they were able to maintain the expected pace of instruction.

Variation in Instruction: How Teachers Enacted the Curriculum

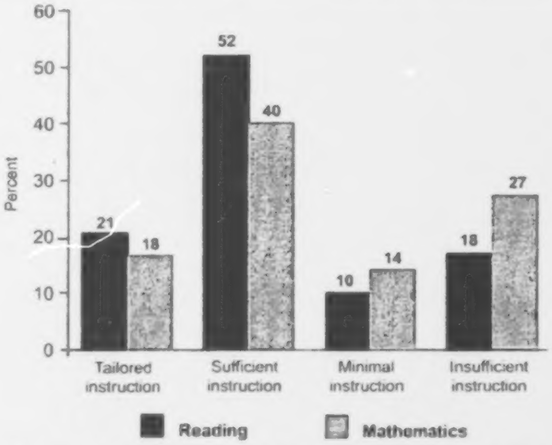
During the course of each observation, field researchers maintained a comprehensive log of what occurred in the class, including detailed information about the content of the lessons, teachers' instructional style, how much time was spent on different activities, classroom configuration, classroom management, and student behavior. Each observation was coded to explore variation in four aspects of teaching. Namely, the extent to which teachers:

- Kept pace with the daily lessons, implemented the instructional foci, followed the guidance and suggestions provided in the daily lesson plans, and used the instructional materials.
- Introduced and provided instruction on concepts in a clear and accurate manner versus simply asking students to do the required assignments without substantial guidance or instruction.
- Engaged students in the class and encouraged their participation by asking questions.
- Monitored students' understanding of the lessons; provided substantive feedback on student participation and work; and geared instruction to individual needs, the needs of the entire class, or both (see Appendix I for methodology).

Once each observation was coded, we grouped lessons into four categories that represented common themes. The category with the highest quality lessons was characterized as having "tailored instruction." At the low end, lessons were characterized as having "insufficient instruction" (see Figure 5-2).

FIGURE 5-2

The Majority of Summer Bridge Instruction Was Sufficient



Instructional categories for reading and math lessons observed in Summer Bridge 2000. In reading, 136 teacher observations were used in this analysis. In math, 139 teachers were observed.

Groups 1 and 2: Tailored and Sufficient Instruction

In close to 20 percent of Summer Bridge lessons, the teacher created a classroom environment that we refer to as tailored instruction. In these classrooms, teachers followed the daily lesson, provided clear and accurate instruction about the topic, and had meaningful and constructive interactions with their students. These teachers pushed students to think and made sure that they understood the lesson and were learning. They often went beyond the instructions in the daily lesson to present topics in multiple ways and structured the lesson so that strong students were moving forward while struggling students received extra attention and support. In Lesson Example 1, Ms. J provides an example of tailored instruction.

Ms. C's lesson (also in Lesson Example 1) provides an example of the majority of lessons we observed in Summer Bridge. We refer to these lessons as providing "sufficient instruction." Just over half of reading lessons and 40 percent of mathematics lessons fell into this category. These teachers structured class time and taught the instructional focus. Even though they tried to engage students in the work and interact with them,

Lesson Example 1: A Day of Challenging and Engaging Students (Tailored Instruction) Versus Just Teaching the Lesson (Sufficient Instruction)

Eighth Grade Reading, Lesson 8: Inferring Character Traits and Feelings

Read the introduction and selection on pages 66-69 in advance. Select words from the text with which students may not be familiar to present as vocabulary words. Write on the chalkboard a sentence using each vocabulary word. Underline the word. Discuss the pronunciation and definition of each word.

Introduce the selection to the students by following the guidelines on page 66 of the Teacher's Edition. Guide students to understand how they can infer the meaning of an unfamiliar word. Have students read page 67 silently. Ask questions to check for comprehension. Guide students to infer the meanings of the underlined words. Allow students to read page 68 silently, pausing between the change of settings to check comprehension. Complete reading the selection. Do "Recalling Facts" and "Interpreting Facts" as group exercises, discussing responses for each section before moving to the next. Note areas of difficulty for further skill development. Prepare SRAs for students.
Source: Chicago Public Schools Summer Bridge Teacher Handbook 1999, Reading Grade 8.

Ms. J's Reading Lesson (52 minutes)

Breakdown	16 minutes individual reading, 10 minutes students reading aloud, 26 minutes on SRA and skill cards
Aides	1 monitor, 1 aide
Students	9 total (4 tardy)
Code	Tailored Instruction
On Board	Instructional Focus: Infer Character Traits and Feelings **Vocabulary** cluttered: John's desk was so **cluttered**, I couldn't find a pen. strewn: After the storm, things were **strewn** everywhere. animated: The actors were very **animated** after the play. emporium: Joann bought her wig at the Hair **Emporium**. hilarious: When Pam stepped on the eggs in the lunchroom, it was **hilarious**.

Ms. J begins class by reading the instructional focus. The teacher asks for students to define "infer," and one student offers "to figure out." Ms. J also asks the class to give examples of "traits" and a student says "smart." Ms. J then introduces the short story, "This is a story about a boy who loves to take pictures. It is his hobby." She asks the class to define "hobby." The class then reads the first sentence of the story together, in which the word "compensate" appears. Students struggle to understand the concept, and Ms. J provides several examples to help them. Finally, the students look up "compensate" in the dictionary, and they discuss several meanings of the word. Ms. J then turns students' attention to the vocabulary on the board. She says, "Here are some other words you might have a hard time with." Eight of the nine students listen attentively as Ms. J walks them through each word and its meaning. (13 minutes)

Ms. J then directs the class to their books. She says the story is called "Getting into Focus" and provides the meaning of the word "focus." She tells the students to read the first page of the short story and write down vocabulary words they cannot determine from the context of the story. Each of the students reads silently as aides remind them to write down words they don't understand. (7 minutes)

The teacher asks if everyone is finished with the story. They are. Ms. J asks students to share vocabulary words that stumped them. Several students have written "preoccupied." Ms. J has the students read the sentence before and after the word "preoccupied" to put it into context. After this, several students offer incorrect definitions of "preoccupied." Ms. J gives several other examples of the word until two students blurt out the correct definition. Another word that troubled students is "disheveled." Ms. J directs them to the word "cluttered" on the board and explains that the author is using many different but similar words to describe the character's room. Students and teacher discuss each vocabulary word. At this point, all nine students are engaged in offering answers to help each other to understand the difficult ones. Students suggest both correct and incorrect definitions. Ms. J listens to the responses before providing the correct answer.

Ms. J then asks the class to describe the main character. One student says he is "punctual" because he has several jobs. Ms. J presses the student to explain why knowing the character has several jobs would lead him to infer punctuality. "What is it about him having several jobs that makes him punctual? Is he busy? Could he keep several jobs without being on time?" Other students offer comments. The teacher explains that the student inferred the character is punctual from other aspects of the story. As a group, the whole class then tackles other inference questions in the same manner. (11 minutes)

Ms. J instructs the students to read the second half of the story. Teacher and students summarize the basic facts and story line. The story is left open-ended, so students and teacher make inferences and discuss the probable ending. Using the same procedure as before, students and teacher walk through challenging vocabulary words from the second half of the story. The entire class actively continues to participate in this exercise. (21 minutes)

Ms. C's Reading Lesson (47 minutes)

Breakdown	41 minutes students read aloud, 6 minutes on SRA and skill cards
Aides	1 monitor
Students	17 total (0 tardy)
Code	Sufficient Instruction
On board	scanned emerging emporium exasperated disheveled compensate illusion animated

Ms. C tells students that today they will be inferring character traits and feelings. She briefly asks the students to define "infer" and how we can make inferences from a story using the clues from the context. Students are instructed to take out their books. One student begins to read the short story aloud. The teacher asks the class what "compensate" means. When the students cannot answer, the teacher has them reread the sentence containing the word. When students still cannot answer, Ms. C follows up by asking "What if you don't turn in your homework and I compensate by giving you more?" Other students read passages of the short story aloud until each has had a turn. As the students read aloud, Ms. C asks the class inference questions about the characters in the story. "Is the girl afraid? Does she have high self-esteem?" Throughout, the teacher corrects any mistakes and praises good reading. Fourteen of the 17 students are engaged and on task at this point.

When a vocabulary word surfaces in the story, the reading stops as the class discusses it. Ms. C encourages the class to use context clues to understand the vocabulary. Sixteen of the 17 students appear engaged. When the class reaches the word "exasperate" in the story, Ms. C asks the group to provide synonyms. Ms. C suggests "frustrate" as an example. Ms. C asks which students keep their rooms clean and what their parents say about it. The teacher reminds the class, "We make inferences all the time." (19 minutes)

Ms. C directs the students' attention to the vocabulary words on the board. The teacher asks the students to read each word aloud and then define it. Sixteen of the 17 students call out answers: for "scanned"—"look around" and "a cursory look." The teacher praises particularly appropriate responses. The teacher tells students that contextual clues are often in sentences later in the story. Students are given homework exercises and are permitted to begin them in class. The lesson ends with the students applauding themselves for their good work. (28 minutes)

Eighth Grade Mathematics, Lesson 8: Instructional Focus – Interpreting Multibar Graphs

The instruction and problem solving in these pages will enable students to read and interpret multibar graphs, compare three sets of data, make generalizations about graphed data, estimate graphed values.

Explain that a multibar graph can be used to compare changes in two or more sets of data. Give students the example of a school raising money for a trip. Each grade level will sponsor three money-raising events: a penny drive, a bake sale, and a walkathon. A multibar graph would clearly show the amount of money raised by each grade for each event. You may wish to use Transparency 11 as you go over this page with students. Ask students the list of suggested questions.

As students work with graphs, suggest that they pay special attention to the form an answer will take. In problem 3, this would be a percent, not a grade or a time or a school.
Source: Chicago Public Schools Summer Bridge Teacher Handbook 2000, Mathematics Grade 8.

(continued on next page)

Lesson Example 1 [continued]

Ms. J's Mathematics Lesson (63 minutes)

Aides	1 monitor, 1 aide
Students	9
Code	Tailored Instruction

Ms. J begins class by posting a sample multibar graph. She walks the class through the title, how to read intervals, how to read values between identified intervals and each of the different components of a graph before reading the questions from the day's math activity. Ms. J reads each of the questions, the students call out the answers, and then she demonstrates each answer in more detail for the class. Ms. J periodically checks that each of the students is following along. (5 minutes)

Ms. J tacks a piece of white paper at the front of the room. She then divides the class into groups and passes out graph components to each group, (such as the x and y axes, data, pieces of construction paper cut to the length of data, etc.) Students are given directions and instructed to put together a graph. After a few moments of confusion, the students complete the assignment. Ms. J tells the class to take out their books and work in groups on the problems on page 30. The teacher's aide circulates and answers questions as the students work out the problems. Every student is engaged and working busily. As each student finishes the assignment, they bring their work to the teacher. She checks it over, briefly discusses wrong answers, and sends each student back to correct mistakes. Ms. J asks a few students who understand graphing to assist two students who are struggling. (35 minutes)

Ms. J brings the class together again, and she directs the class's attention to one problem that everyone missed. The problem involves a Y axis labeled "time" and the question asks for the slowest activity. The class had chosen the lowest rather than the highest bar. She goes through the problem carefully. It is clear the students understand. A murmer of "Oh, I should have gotten that one" runs through the class. Ms. J reminds the students to read and understand each question on the Iowa test (ITBS) before they answer. Ms. J then goes over the remaining answers with the class, calling on students who aren't raising their hands to answer. When the class disagrees, she has the students offer explanations to each other. (23 minutes)

Ms. C's Mathematics Lesson (61 minutes)

Aides	1 monitor
Students	13
Code	Sufficient Instruction

Ms. C begins class by asking students to take out their math materials. "We have been talking about graphs." One student groans, calling the lesson "boring." Ms. C tells the students she doesn't determine the curriculum and besides, "This is for your own benefit." Moving on, she describes the lesson's objectives: to read and interpret graphs, to compare three sets of data, and to estimate graphed values. She draws a vertical and horizontal axis on the board as one student reads aloud an example from the textbook. The class discusses very briefly the types of graphs the students prefer. The students continue to read the questions and answers aloud for the next 30 minutes. The teacher interrupts the reading twice: once to voice her disagreement with an answer to one of the questions, and a second time to lecture the class on the importance of a good night's sleep to maintain energy for class. As the students read aloud, Ms. C goes to the board to clarify one of the examples in the book, and then to a student's desk to explain this point individually. Eleven students are paying attention and two are not listening. Ms. C solicits student input on question #6, page 30. She asks one student to go to the board to estimate an answer. (43 minutes)

The teacher tells the class to work in groups to complete the remaining problems. She then walks around to provide direction to students with questions. Again, 11 students are engaged and two are not. Near the end of the lesson, Ms. C explains one of the more difficult problems to the entire class. The math class concludes with Ms. C reminding students that the Iowa Test (ITBS) is in three weeks. (18 minutes) they did not go beyond the instructions in the daily lessons to ensure that all students understood the concepts. While Ms. J pushed her class to understand the concept of inference, Ms. C had students make inferences without helping them to understand the connection between the questions she was asking and the larger concept of inference. Ms. J helped students learn vocabulary words by putting them in context. She had students identify the words they did not understand and then worked collaboratively with the class to define the words and teach students skills to continue to build their vocabularies on their own. Ms. C, on the other hand, named problematic words herself and generally elicited students' participation without ensuring that they were gaining knowledge or building skills.

> *Only 20 percent of the time, however, did we observe lessons where teachers went beyond providing clear and accurate instruction to engage students actively in the learning process, challenge them, and ensure that they were mastering concepts.*

In mathematics, Ms. J and Ms. C also differed in their enactment of the curriculum. Although both taught multi-bar graphs, Ms. J carefully and thoroughly explained the topic, used peer tutoring and had students work in small groups on a range of tasks, circulated to support students in their work, and brought the class together to clarify and reteach an aspect of the lesson. Ms. C also provided basic instruction that was clear and accurate; however, while Ms. J used small groups for much of the class, Ms. C had students read questions and answers aloud for almost half of the lesson.

Group 3: Minimal Instruction

In a little over 10 percent of lessons, teachers created an environment where students worked on assignments and used materials related to the instructional focus, but provided little instruction and little or no support or guidance. We refer to these classes as providing "minimal instruction." These teachers did not actively engage students in the lesson, nor did they provide them with feedback. Ms. A in Lesson Example 2 illustrates this type of instruction. Although the lesson was structured and students read aloud, defined words, and later worked independently, the instructional foci were not really mentioned and the teacher did not provide instructions or support students as they completed the work.

Group 4: Insufficient Instruction

In approximately 23 percent of the Summer Bridge classes we observed, the lesson was virtually not implemented. We refer to this group as "insufficient instruction." In these lessons, little or no time was devoted to instruction. There were often extensive periods of down time, and teachers provided little structure and inadequate classroom management. Lesson Example 3 illustrates this type of instruction. Mr. S's lesson included substantial amounts of down time and non-instructional interruptions; poor classroom management; and unclear, fragmented and inaccurate instruction. Mr. S did spend some time talking about division, the intended instructional focus of the lesson, but he did not present the content in a clear or coherent manner and students were disengaged for much of the class.

Observing Instructional Quality

The majority of lessons (approximately two-thirds) fell into our sufficient or tailored instructional categories. Only 20 percent of the time, however, did we observe lessons where teachers went beyond providing clear and accurate instruction to engage students actively

Lesson Example 2: Minimal Instruction

Sixth Grade Reading Lesson 21
Instructional Focus:
Interpret non-literal language, deduce meanings not explicitly stated in text, and identify author's point of view.

Teacher Directed Activity:
Review previous day's homework assignment. Place instructional focus on chalkboard and discuss briefly with the students.

Share with students that the author uses figurative language to add color and humor to "The Will and the Way" and to help readers picture in their minds what is being described.

Place the following terms on the chalkboard: simile, personification, metaphor, and hyperbole. Pronounce each term and discuss by turning to p. R61; share focus information with students to see how the author uses figurative language to add color and humor to the selection. Use the visual/spatial model on p. R61 to model examples of simile, metaphor, personification, and hyperbole.

To determine if students are able to understand the use of figurative language, ask them: What does the author mean when she says that Paul "carved his own road"? To check students' understanding, have them define four kinds of figurative language. Have students use examples of figurative language. Then have students use two kinds of figurative language in sentences that explain short-range future plans, such as what they are going to do first when their vacation begins.
Source: Chicago Public Schools Summer Bridge Teacher Handbook 1999, Reading Grade 6.

Ms. A's Reading Lesson (88 minutes)

Aides	No Aides
Students	12
Code	Minimal Instruction

Classroom locked, students are waiting outside. After five minutes Ms. A arrives. Students pile into the classroom while the teacher finishes eating her breakfast. (11 minutes)

Ms. A reads a passage from the textbook and asks if everyone finished their homework. Teacher sits down at her desk at the front of the room and says, "Question one, 'simple' means?" Several students shout out their answers. Ms. A explains that the meaning is not based on the definition but on the context of the passage. Teacher asks students to read out their answers to each question. Teacher asks, "What do you want to know about the passage?" Students offer several answers. Ms. A continues, "What did you learn from the passage?" Students again offer several answers. (9 minutes)

Ms. A reads a paragraph and then asks students if they have ever been to Los Angeles and if they saw the LAX theme building. Students respond. The teacher then asks a student to continue with the next paragraph. Occasionally, Ms. A asks students for definitions of words located in the paragraph. After the student is finished, another student reads, and the cycle continues for 40 minutes. (40 minutes)

Ms. A announces, "It's now SRA time!" She walks over to her desk and takes out a stack of SRA cards and begins distributing them to the students. While some students work diligently on SRA exercises for the remainder of the class time, other students attempt to talk among themselves. Noticing the disruptive behavior, Ms. A separates the students and tells them to work on their SRAs. (28 minutes)

Lesson Example 3: Insufficient Instruction

Third Grade Mathematics Lesson 10

Assigned Lesson Plan

Just the Facts!! Have students turn to p. 50 in the Test Best *book. Read and discuss the directions with the class for "Try This" and "Think It Through." Assign problems 1 – 6 for practice. Check questions and answers with the class.*

Daily Challenge

Susan has 8 dimes and 20 pennies. She divides them equally among three friends and herself. How many dimes does each get? How many pennies does each get? How much money does each have?

Turn to p. 72 in On My Own. *Pass out 15 counters to each student. Work through problem 1 on the top of the page with the class. Make sure the students understand what they are doing. Have the students write a multiplication sentence for each division sentence. Assign problems 2-11 for independent work. Check.*

Write the following problem on the chalkboard: 21 ÷ 7 = ?
Ask the students to look up the following words in "Math Tools": dividend, divisor, quotient, factor, and product.

Ask for volunteers to read definitions. Ask: What are the names of the digits in the problems on the chalkboard?
21 = dividend, 7 = divisor, and 3 = quotient. Remind the students that multiplication and division are inverse operations. Since 3 x 7 = 21, then 21 ÷ 7 = 3. Review the vocabulary on the top of p. 74 in On My Own.

Demonstrate on the chalkboard how to use an array to show division. Show an array of 12 and solve 12 / 3.

Step 1
Start with 12 shown in this array.
• • • • • • • • • • • •

Step 2
Separate into 3 equal groups of four
• • • •
• • • •
• • • •

So, 12 ÷ 3 = 4

Work through problem 5 with the students. Assign problems 6-16 as independent work. Check. Have the students open Take Another Look *to p. 76. Work through the example on the top of the page with the students. Ask for a volunteer to read the definition of a factor and product from "Math Tools." Ask for volunteers to provide the answers to problems 1-11 on p. 76. Remind the students that before you can choose an operation to solve a problem, you must decide what the problem asks you to find. Carefully review the "Remember" with the students. Work through problem 1 with students. Invite volunteers to read and solve problems 2-4 on the chalkboard.*
Source: Chicago Public Schools Summer Bridge Teacher Handbook 1999, Mathematics, Grade 3.

Mr. S's Mathematics Lesson (72 minutes)

Aides	No Aides
Students	12
Code	Insufficient Instruction

Mr. S tells students to take out a piece of paper to write down homework for the day, which is written on the chalkboard. The teacher walks to the back of room to sharpen pencils for the class. He tells one student to sit at the side of the class and look up 100 words in the dictionary, and gives him one hour to do it. The boy makes a face at the teacher and Mr. S extends the assignment to 200 words.

(continued next page)

The teacher distributes *Skill Power* to students and tells them to raise their hands if they have their times table charts. He makes the eight students who do not have their charts stand and tells them that they will get a "zero" (it is unclear what the "zero" applies to). "How do you plan on learning today's work if you don't have your charts? You cannot participate in today's lessons if you don't know your tables."

Mr. S tells the students to take out their books; he checks one student's homework and explains to her that 2 x 3 = 5, not 6 (*sic*). The rest of the class is off task (e.g., 3 girls chatting, 1 boy looking out the window, etc.) while he talks to the girl. The teacher goes to the next student to check her homework. He tells the students who are still standing to write their times tables as he corrects homework. Three of the eight start working on their tables while the others continue talking to each other. The teacher continues to grade students' homework one by one. Now only one student is working on his tables. Mr. S shouts at one student, "The pencil is right in front of your face. Write your times tables. What excuse do you have now?" He yells at another student who is not doing her tables, "You've got something else to say?" The teacher assigns her to write 200 definitions from the dictionary. One student starts dancing behind the teacher. At this point, except for the 2 students writing definitions, all students are off task. (30 minutes)

Mr. S writes "21 ÷ 7 = ?" on the chalkboard and asks the students to solve it. Students are off task (e.g., 3 boys behind the teacher's back are moving around, 1 boy is under the desk, 2 girls are chatting). When students do not respond, the teacher repeats question. Several students attempt wild guesses to answer the question; every answer was wrong.

Mr. S writes a new question on the chalk board: "1 ÷ 4 = ?" He stops writing and yells at one student who is talking to a friend. "[Student Name], open your mouth again and I'm going to hurt you!" The teacher asks students what a dividend is. Nobody answers initially, then one boy reads the answer from his textbook. The teacher tells students to take out their textbook and tell him what a divisor is. Students answer, "The number after 'by' is the divisor (e.g., divide 4 by 2)." Mr. S writes the answer on the board and instructs students to look up the word "quotient" in their books. The teacher writes on the chalk board:

21 ÷ 7 = 3 (21 = dividend, 7 = divisor, and 3 = quotient)

The teacher stops writing and approaches a boy. He grabs the boy by the hand and makes him leave the class. He closes the classroom door and tells the class, "You're going to learn or you're going to pay the price in three weeks when your Iowa Test [ITBS] comes, and you'll know if you pass or fail. . . . You don't pass math and you fail; you fail English, you fail. . . . You've got to pass both!"

Mr. S tells the class to write down what he has written on the board and asks the class, "What is a factor?" One girl reads the definition from her book. As students copy the information on the chalkboard, the teacher asks them to give an example of factors. Various students reply 5 x 5, 3 x 6, 2 x 10, etc. The teacher then says, "The answer you get is the product: 3 x 6 = 18. Factors are numbers you multiply together to get an answer." The teacher tells students to write down the numbers on the chalkboard.

Someone comes into the classroom with a stack of emergency forms. The teacher explains the form to the class and the importance of it; Mr. S tells students how a year earlier a car drove onto the playground and hurt some kids, so they should fill it out in case that happens to them. Mr. S tells students to open their books and asks them how to solve the first question. When no students answer, he tells them to look at their times tables. The teacher asks a student for the answer. When the student does not reply, Mr. S says, "Say, 'I don't know'." Student complies and the teacher moves on to another student. Most of the class is off task – 8 students did not even have their books out. The teacher calls on one of the students writing definitions to answer question 1. She stops writing and takes out her math book. While she is looking at the question, another student offers an answer. The teacher replies, "Shut up! If you misbehave one more time, you cannot come to summer school anymore!" The teacher goes on to the next questions and answers them for the class. The teacher finishes and the students get ready to leave. (42 minutes) in the learning process, challenge them, and ensure that they were mastering concepts. We observed higher quality instruction in reading than in mathematics. Twenty-seven percent of mathematics lessons, compared with only 18 percent of reading lessons, were categorized as insufficient instruction. This difference may reflect greater teacher expertise in reading instruction or a decision to place more emphasis on reading. The higher levels of insufficient instruction could also be attributed to the scheduling of mathematics lessons. In most cases, mathematics was taught after reading; classroom management may have been more difficult during this period because teachers and students were losing stamina. It is also possible that the reading curriculum was designed in a way that allowed teachers to implement lessons more smoothly and coherently; the mathematics curriculum required teachers to switch topics more frequently, and teachers reported that they struggled with the pacing in mathematics more than in reading.

Summer Bridge classrooms were characterized by high levels of skills practice and instruction focused on the prescribed topics. In general, we found that instructional time was geared toward building students' basic skills.

We also observed differences in instructional quality across grades. Reading instruction among eighth-grade teachers in our sample was of lower quality than what we observed in the third and sixth grades. Less than two-thirds of eighth-grade reading teachers provided tailored or sufficient instruction (the top two categories) compared with over three-fourths of sixth- and third-grade teachers. Mathematics instruction in sixth grade was lower in quality than in other grades as well. We do not know whether this pattern is generalizable to other Summer Bridge classrooms or is simply an anomaly in this small sample of schools.

Differences in Instructional Activities and Grouping

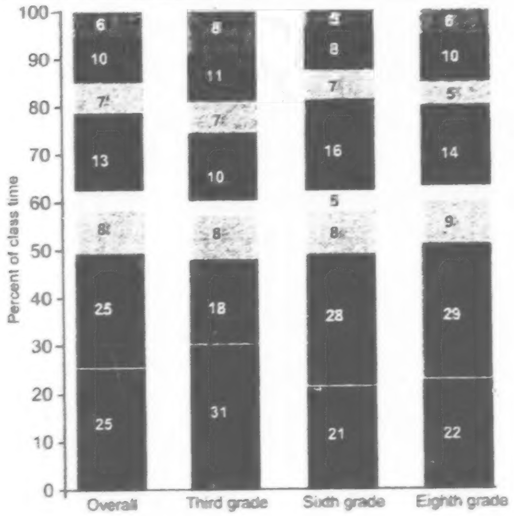
Because teachers followed the curriculum closely, most instruction in Summer Bridge included a review of homework and an introduction to the lesson followed by instruction, skills practice, and then some review. In examining instructional activities in Summer Bridge, we drew on a coding scheme developed by Consortium researchers.[2] Instructional time includes time spent lecturing on the instructional focus (knowledge acquisition), having students practice skills (skills practice), reviewing work they had done previously (review), taking tests (testing), and working on in-depth problem-solving activities (understanding). Time spent preparing for instructional activities (set-up) included both instructional and non-instructional time. In our Summer Bridge observations, approximately one-third of set-up time included instruction.[3] Additional non-instructional time includes time where the class is disrupted and there is no formal activity (down, disrupted), and time spent taking attendance and other non-academic tasks (housekeeping).

Summer Bridge classrooms were characterized by high levels of skills practice and instruction focused on the prescribed topics. In general, we found that instructional time was geared toward building students' basic skills. During reading lessons, teachers spent about 25 percent of their time on knowledge acquisition, which included lecturing or having students read (see Figure 5-3a). They spent an additional 25 percent of class time having students engage in skills practice. These activities included having students answer basic questions about a passage they had read or work on vocabulary and reading comprehension exercises. Additionally, during reading lessons, teachers spent about 10 percent of their time setting up new activities (e.g., providing background information on a new topic, giving directions), about one-third of

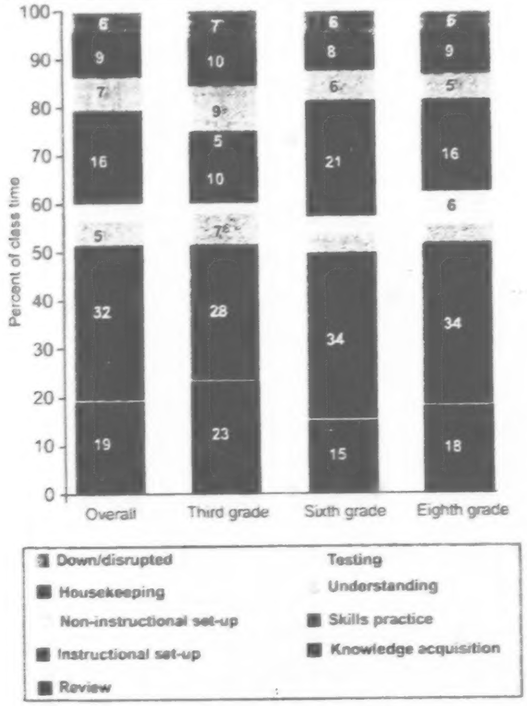
FIGURES 5-3A AND B

Summer Bridge Teachers Spend about Half of Their Time Lecturing and in Skills Practice

Reading Instructional Categories



Mathematics Instructional Categories



See the sidebar, "How Teachers Used Their Time in Summer Bridge: Definitions of Our Categories." Data are from 2000 Summer Bridge observations.

which included instruction, and 13 percent of their time reviewing work that students had completed previously either in class or for homework. On average, only 8 percent of Summer Bridge reading lessons were devoted to understanding or in-depth student work, such as activities that required students to solve problems interactively and do more than just practice basic skills.

The proportion of time that teachers spent on instructional activities differed somewhat across mathematics and reading (see Figure 5-3b). In mathematics, teachers engaged students in more skills practice and spent less time lecturing students and providing instruction (knowledge acquisition). Almost a third (32 percent) of the time was spent on skills practice in mathematics (compared with 25 percent in reading). On average, teachers spent only 19 percent of their time lecturing in mathematics. As in reading, teachers spent 10 percent of their time setting up new activities in mathematics lessons. They spent 16 percent of their time reviewing previous work (slightly more than the 13 percent in reading). Teachers spent even less time having students work on in-depth academic activities (understanding) than they had in reading, with only 5 percent of instructional time devoted to more extensive problem-solving activities.

How Efficiently Was Time Used in Summer Bridge?

The focus on instruction and skills practice suggests that Summer Bridge classrooms were relatively fast-paced environments in which teachers were structuring lessons and student work with little down time and quick transitions. Indeed, one hypothesis to explain why students felt that they were working harder and why we observed large test-score gains in Summer Bridge is that the program produces more focused instructional time than the school year. Smith (1998) found that poor time management and low levels of instructional time erode the opportunity to learn in Chicago's elementary schools.

In general, there was little time spent on non-instructional activities in Summer Bridge. On average, over three-quarters of class time was devoted to either providing instruction, having students practice skills, or setting up and reviewing assignments and activities. Less than a quarter of class time, on average, was spent on non-instructional activities. Much of this time was spent on the announcements and activities that naturally consume some portion of students' time in school (e.g., taking attendance, handing out materials). A small portion of time was also spent on classroom management, discipline, or with some type of disruption.

Did Teachers Vary in How They Grouped Students for Instruction?

The Summer Bridge curriculum, particularly in the third and sixth grades, called for teachers to use small group instruction very frequently. Importantly, this was the one area in which most teachers did not follow the curriculum. In both reading and mathematics, the average teacher worked with the entire class close to two-thirds of the time (see Figures 5-4a and 5-4b). Most of the activities that we observed—lecturing, setting up assignments, reviewing student work, and housekeeping tasks—were conducted in a whole-class structure. The rest of class time was usually spent with students working on assignments individually (29 percent in reading and 26 percent in mathematics), most often in exercises that emphasized skills practice. In both mathematics and reading, teachers used groups, on average, only 5 percent of the time.

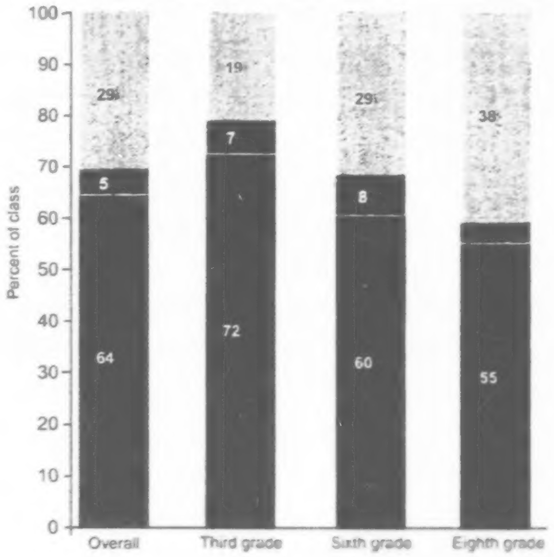
Differences across Grades in Time Management and Instructional Activities

Third-grade teachers differed from their middle grade counterparts both in how they grouped students and in the amount of time they spent on instructional activities. Third-grade teachers spent almost three-quarters of Summer Bridge time with students grouped as

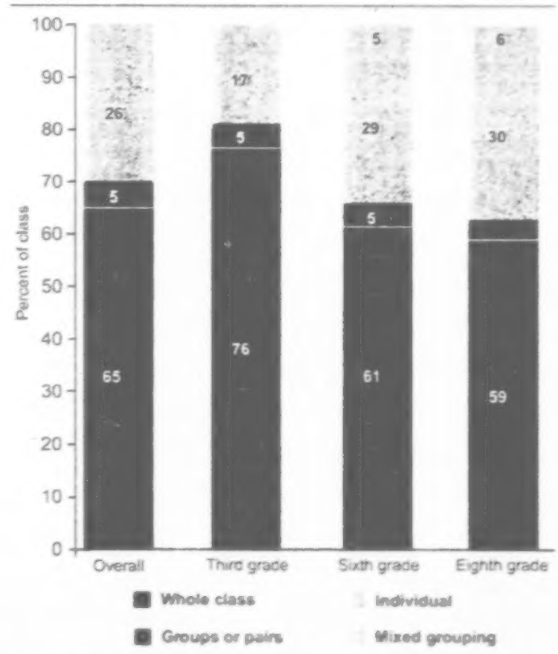
FIGURE 5-4A AND B

Teachers Spent the Majority of Class Time Providing Whole Class Instruction and Very Little Time Working with Students in Groups

Reading Group Codes



Mathematics Group Codes



Data are from 2000 Summer Bridge observations.

How Teachers Use Time in Summer Bridge: Category Definitions and Examples

Down/disrupted: Activities that bring instruction or student work to a stop and when the classroom is not engaged in any task (e.g., teacher steps out of the room for five minutes while the class waits).

Example: Neither the teacher nor students are in the room at the beginning of class. The teacher arrives and students straggle in one-by-one. A school administrator enters and has a conversation with the teacher about students attending a high school orientation while the students are sitting at their desks talking.

Housekeeping: Necessary but non-instructional activities such as taking attendance, handing out paper and reading announcements. Also pertains to group maintenance activities such as pep talks or the brief chatting that often begins a class.

Example: An administrator talks to students about a letter sent by the school telling them to attend an orientation on a Summer Bridge day. She tells the students that they should not go to the orientation. The administrator leaves and instruction resumes.

Set-up: Instructional set-up includes reviewing instructions, completing an example together as a whole class to make steps of an activity clear. Non-instructional set-up includes handing out materials, getting into groups, and providing directions.

Example (Instructional Set-up): The teacher tells students to open their textbooks and look at a chart about main ideas and details. She instructs them to describe something they can see from their seats using the chart as a guide. They should write several sentences about the object. A student asks for clarification and the teacher describes a bookcase as an example of what she wants.

Review: Reviewing or checking work without much instruction or feedback. Calling out answers to math problems or recalling the who, what, when, and where of a story chapter. May include brief episodes of "reteaching," but if the reteaching is extensive or evolves into new instruction, this code is not used.

Example: The teacher explains that the day's instructional focus is determining whether the main idea is stated or not. She asks a student to summarize a passage they read about Australia. The student responds that the story was about a girl who lived on a sheep ranch and was educated through the mail.

Knowledge acquisition: Lecturing, learning via listening, not talking or reading, and most teacher-led didactic

a whole class. In contrast, eighth-grade teachers spent only 55 percent of reading class time with students grouped as a whole class. Similarly, third-grade teachers had their students work individually much less often than sixth- and eighth-grade teachers. Since most skills-related work is completed individually, it is not surprising that the whole-class environment created by third-grade teachers also resulted in a smaller proportion of class time being devoted to skill work in both reading and mathematics than in the sixth and eighth grades. Third-grade teachers spent substantially more time lecturing and providing whole-class instruction, but less time reviewing previous work. In Chapter 4, we found that third-grade teachers were also less likely to report tailoring the curriculum to meet students' needs and working with individual students outside of class. Third-grade teachers may have either lacked the capacity themselves, or felt that their students lacked the capacity to work individually or in small groups, despite the emphasis on these activities in the curriculum.

instruction. Includes checks on basic comprehension (presenting and questioning on who, what, when, and where). Watching a video.

Example: The teacher explains how to find the main idea, "You figure out what the story is about and find details to support it." A student reads aloud about stated and unstated main ideas from the book. The others are to follow along in their books. The teacher asks a student to read aloud a passage about migrating birds. The students are asked to underline the phrase that gives the main idea. A student reads a segment of the story to the class. The teacher asks her what the main idea of her paragraph was, and the student responds.

Skills practice: Skill and seat work such as fill-in-the-blank exercises, basic skills work in language arts such as grammar and vocabulary, math calculations, labeling maps or graphics.

Example: The teacher asks the students to underline the main idea in paragraphs 1, 4, 5, 6, and 9. Some students talk to each other about what the answers might be; others are working on their own to find the answers.

Understanding: Activities that involve higher-order thinking and/or exploring material in depth. These activities require students to produce a substantive piece of work, such as a discussion, an individual or group project, writing assignments, design work, graphing, mapping and modeling, hypothesis testing, estimation, analysis, synthesis, evaluation, or other forms of problem solving. Activities involve multiple steps and are understood to be part of a whole.

Example: Students work quietly for ten minutes on charts they are creating. When they all finish, the teacher tells them to write about the first two chapters of their novels using a chart like the one they just completed to show the main idea and supporting details. As students work, the teacher walks around the class assisting students.

Taking a test, practice test, or test prep: Taking a test, practice test, or activities that are explicitly linked to test-taking strategy. Discussing directions for the ITBS, strategies for answering multiple-choice questions, reading strategies that apply only in timed situations, math strategies that rely on having answer choices available, or the phrasing of questions as they appear on ITBS.

Note: No example of test taking/test prep is included here as it was observed very rarely (approximately 1% of the time).

Differences across Instructional Environments in Instructional Activities and Time Use

We find little variation in both grouping and instructional activities across our four instructional environment categories (tailored, sufficient, minimal, and insufficient). This is most likely due to how closely teachers followed the daily lesson plans and the program's prescribed pacing. Of the differences we do find, teachers who provided more quality instruction during reading lessons tended to provide more whole-class instruction, had students work in groups more often, and had students spend less time working individually. A more pronounced difference across the categories was that teachers who provided tailored instruction differed in the quality and variety of interactions that they engaged in with their students. These teachers provided more feedback to students, both as a group and individually, and made a greater effort to present the material so that it was accessible to both their strongest and their weakest students. Teachers who provided tailored instruction went beyond the prescribed topics and activities to create learning environments that were geared to the needs of the students in their classrooms.

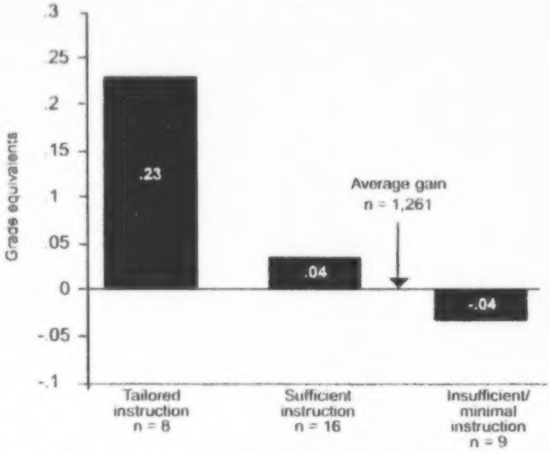
Did Teaching Matter? A Look at Learning Gains across Instructional Environments

A final question is: Did instructional variation and differences in the learning environments of Summer Bridge classrooms affect how much students learned in the program? The best way to evaluate this question is to link students' learning gains to their Summer Bridge teachers. Unfortunately, although we are able to link Summer Bridge students to their schools, we are unable to link them directly to their teachers in schools with more than one Summer Bridge classroom in a particular grade. Of our 12 schools, about 60 percent had one class per grade and 40 percent had two or more. We can look at whether teacher quality and learning gains were correlated, but there is substantial error in our method due to the cases where there are multiple classrooms within a grade. In those instances, students' learning gains are only partially attributable to the teacher we observed. Thus, our analysis underestimates the relationship. We looked at the average adjusted learning gain in each school at each grade accounting for the incoming test scores and demographic characteristics of students as well as school characteristics.[4] This analysis was conducted for all Summer Bridge classrooms in 2000 (see Appendix J).

We compared the Summer Bridge adjusted reading test-score gains in the third, sixth, and eighth grades for each school in which we conducted observations. Even with the above-mentioned measurement error, students in grades where the observed teachers' lessons were rated as providing tailored instruction had, on average, substantially larger adjusted test-score increases in Summer Bridge than the average Summer Bridge student (see Figure 5-5). Students in our 12 schools who were in grades where the observed teacher was rated as providing sufficient instruction—the instruction that we observed most frequently in Summer Bridge—had slightly higher adjusted test-score increases than the average Summer Bridge student. Finally, the students of teachers who provided little or no instruction (teachers whose lessons were rated as minimal or insufficient instruction) had adjusted test-score gains slightly lower than the average Summer Bridge student in 2000.

FIGURE 5-5

Observed Classrooms with High-Quality Instruction Had Larger Adjusted Learning Gains than the System Average in 2000



On this figure, zero represents the average Summer Bridge adjusted learning gain in reading in each grade for the entire system. Scores above and below zero indicate learning gains above or below that of the average Summer Bridge classroom in 2000.

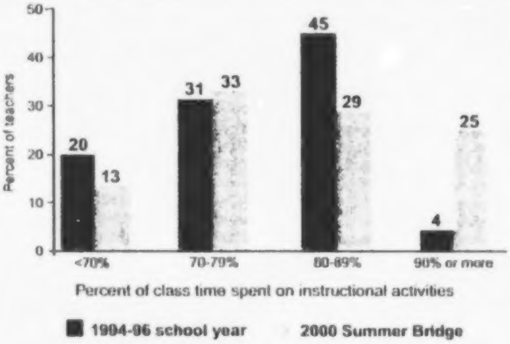
Summary

Almost all of the Summer Bridge teachers we observed used the daily lesson plans and were able to maintain the program's pacing. There was little variation across Summer Bridge teachers in the types of activities they engaged students in and how they grouped students in their classrooms. Rather than differences in instructional activities or grouping, the qualities that set well-implemented lessons apart in Summer Bridge were the connections that teachers made with students, the extent to which they provided them with individual support and feedback, and teachers' efforts to provide instruction that was both accessible and engaging. In both Chapters 4 and 5, we find evidence that some

Comparison of Time Use in Summer Bridge to Use in the School Year

We compared the amount of non-instructional time we saw in Summer Bridge to that found by BetsAnn Smith in her 1998 Consortium report *It's About Time: Opportunities to Learn in Chicago's Elementary Schools*. In that report, effective time use is defined as having less than 20 percent non-instructional time in the school day. We found that teachers in Summer Bridge used their time effectively in 54 percent of the lessons we observed. During the 1994-96 school years when the data were collected for Smith's study, about half (49 percent) of teachers used their time effectively. Even though these numbers are quite similar, Summer Bridge did have a larger proportion of teachers who used their time effectively. Also, although we found that 25 percent of the Summer Bridge lessons we observed lost 10 percent or less of class time to non-instructional activities, only 4 percent of teachers during the 1994 through 1996 school years used their time that effectively.

Summer Bridge Teachers Used Their Time Somewhat More Effectively Than Teachers in the 1994-96 School Years



Estimates on CPS school year were obtained from classroom observations conducted in the 1994, 1995, and 1996 school years as part of the Classroom Effects Research study. Estimates are reported in Smith's *It's About Time*, 1998. Data on Summer Bridge from classroom observations in 2000.

teachers tailored instruction to the needs of their students. Here we show evidence that teachers who provided individual attention and feedback had a positive impact on students' learning gains.

In this chapter, we have looked at how instruction varies when teachers are provided with a mandatory curriculum that includes daily lesson plans. The mandatory curriculum does appear to have resulted in similarities in instructional activities and classroom structure. Teachers were told what to teach and what activities to engage their students in, and they did so. We also find, however, that what teachers themselves bring to the classroom still matters. The extent of individualized instruction that teachers provided and how much they worked to gear their lessons to their students' needs varied extensively across Summer Bridge classrooms, despite the mandatory curriculum.

John Booz

CHAPTER 6

Sustainability of Summer Bridge Gains

As we saw in Chapter 2, CPS students experienced significant test-score increases in Summer Bridge, particularly in the sixth and eighth grades. Previous research has found, however, that gains made in summer school tend to diminish over time.[1] Our findings and previous research raise the question: To what extent did Summer Bridge benefit students in the long run? In this chapter, we examine this question by looking at two-year learning trends among third- and sixth-grade students who attended Summer Bridge in 1997 and 1998.[2]

Looking at Sustainability: A Research Approach

If Summer Bridge learning gains represent improvement in students' test scores that can be sustained over time, we would expect students who attended Summer Bridge to have greater test-score gains on the ITBS administered the following spring than similar students who did not attend. Thus, we need a comparison group to examine whether Summer Bridge test-score gains are sustained. Since all students whose scores are below the cutoffs are required to attend Summer Bridge, there is no comparable group of students with identical test scores who do not attend the program.

How do we obtain an adequate comparison group? One approach would be to compare the performance of students in years prior to the CPS promotional policy (pre-1996) to that of students who attended Summer Bridge. The problem with this method is that test scores rose substantially after the 1996-97 school year, and supports for low-achieving students, such as the Lighthouse after-school program, were added at that same time.

Thus, it is possible that Chicago's low-achieving students may have experienced increased learning gains without Summer Bridge. A student who scored a 4.6 on the ITBS in 1997 might have learned more between the end of sixth and the end of seventh grade than a similar student prior to the policy, either because of Summer Bridge or because she received more attention during the school year. As a result, comparing low-achieving students' achievement before and after the policy would overestimate the effect of Summer Bridge by confounding Summer Bridge effects with overall improvement in student test scores after the 1996-97policy.

A second approach is to take advantage of the fact that there is wide variation from test to test in students' performance on the ITBS. Because a single test-score cutoff was used to determine whether students would be promoted or retained, many students who attended Summer Bridge had scores that were just below the cutoff, while many who did not attend had scores just above. For example, sixth graders who scored a 5.2 went to Summer Bridge, while sixth graders who scored a 5.4 did not. In many cases, this decision resulted from answering one question right or wrong on the reading test. Thus, while the achievement of all sixth graders who did not meet the test-score cutoffs in spring is not comparable to that of all sixth graders who did, we would expect sixth graders who were close to the cutoffs on either side to be similar.

There are analytic problems in using this group as a comparison for students who attended Summer Bridge. The first problem, as we have discussed throughout this report, is regression to the mean. As many students in Summer Bridge may have wound up in the program because of a low test score, we might expect their following school year to be better than average even if the program had no effect. A second problem is maturation. Students with low test scores may, particularly in the third grade, "mature" and begin to catch up with their counterparts. Thus, we might expect that even before the policy was implemented, students with test scores below the cutoffs would follow poor third- or sixth-grade years with better than average fourth- or seventh-grade years.

We address these problems by looking at test-score trends for students who have scores within a narrow range above and below the cutoffs from both before and after the policy was implemented. We start with a group of students whose ITBS scores fall within a three-month band around the cutoffs—a group of students we expect to be similar in terms of achievement.[3] For example, in the third grade, we compare students whose spring ITBS scores were between 2.5 and 2.7 GEs and who attended Summer Bridge to another group of third graders who scored between 2.8 and 3.0. We call the first group "Summer Bridge high scorers" and the second group "comparison group." We also constructed two additional comparison groups made up of students enrolled in a CPS school before the 1996-97 school year. Our "pre-policy Summer Bridge-eligible group" comprises students who would have been required to attend Summer Bridge if the promotional policy had been in effect. Therefore, for the third grade, students in this group would also have scored between 2.5 and 2.7 on the ITBS. Similarly, our "pre-policy comparison group" comprises those third graders who scored between a 2.8 and a 3.0 on the ITBS prior to the policy. We estimate whether Summer Bridge gains are sustained by comparing the difference in learning gains between Summer Bridge high scorers and the comparison group to the difference in learning gains between the two pre-policy groups with the same test scores.

This analysis includes students who were required to attend Summer Bridge for reading only. It also excludes retained students in order to distinguish between the effect of Summer Bridge and retention.[4] Summer Bridge high scorers make up approximately 40 percent of third graders and 35 percent of sixth graders who were required to attend the program and were tested at the end of the summer. Students who attended Summer Bridge because of their mathemat-

Using Test Scores to Construct Comparison Groups

Missing one question on the Iowa Tests of Basic Skills (ITBS) can mean the difference between meeting the promotional cutoff and attending Summer Bridge. For example, on the 1998 reading ITBS, third graders who had 14 questions correct received a 2.7 while students answering 15 questions correctly received a 2.8. The cutoff score for third graders was 2.8.

When we look at the distribution of test scores in 1998, we find that approximately 14 percent of third-grade students scored between 2.5 and 2.7 (raw scores of 12 to 14 correct out of 36 questions). This is our Summer Bridge high scorer group. Another 11 percent of third graders scored between 2.8 and 3.0 (raw scores of 15 to 17). The latter group is our comparison group. In addition, we constructed two additional comparison groups who attended a Chicago public school prior to 1996, or before the promotional policy was in place. Sample sizes across our four groups in the pre- and post-policy years are in the table above.

	Third Grade		Sixth Grade	
	Summer Bridge high scorers (2.5-2.7)	Comparison group (2.8-3.0)	Summer Bridge high scorers (4.9-5.2)	Comparison group (5.3-5.5)
Post-policy				
1997	2,843	1,598	2,189	1,742
1998	2,230	2,440	1,213	1,652
Pre-policy				
1993	3,215	2,768	2,408	2,488
1994	3,389	2,701	1,255	2,431

ics score, because of low attendance, or other poor school year performance, were excluded from the comparison group.

In this chapter, we look at the performance of third and sixth graders who attended Summer Bridge in 1997 and 1998 in order to look at test-score increases one and two years after Summer Bridge attendance. Third graders had moderate adjusted gains in Summer Bridge, approximately one to two months. As discussed in Chapter 2, third graders at the lowest risk of retention had slightly smaller gains in Summer Bridge than third graders at the highest risk. Thus, for third grade, our estimate of sustainability could be considered conservative. Sixth graders in Summer Bridge also had moderate adjusted test-score increases in reading of approximately four months. Adjusted test-score increases were higher for sixth graders at low risk of retention. Thus, our estimate of sustainability in sixth grade is probably a best-case scenario because we are looking at students who likely had the largest gains after Summer Bridge.

In Chapter 2, we found that eighth-grade students had the largest test-score gains in Summer Bridge. Unfortunately, we are unable to investigate whether these gains are sustained because CPS ninth graders take a different standardized test, the Tests of Achievement and Proficiency (TAP). TAP and ITBS scores are not directly comparable. In future research, we will investigate the long-term implications of eighth-grade Summer Bridge effects by examining students' high school performance and dropout rates.

Departing from Grade Equivalents to Study Growth over Time

Throughout this report, we have reported Summer Bridge adjusted test-score gains in the GE metric, which the school system uses to make promotional decisions. Because it is measured relative to an average student in a certain grade, the GE metric is adequate for looking at test-score gains within a grade, but it is inadequate for examining growth over time and across groups of students. Also, because different forms of the ITBS are administered each year, the GE metric makes comparing scores across years difficult.[5] To address these problems, the Consortium conducted an extensive equating study that converted ITBS test scores to a logit metric using Rasch models that are

Generalizing Our Findings on Sustainability

This chapter limits analysis of sustainability to students who were just below and above the Summer Bridge test-score cutoff in reading because, as we have argued, these students can be considered an adequate comparison group—students in these groups have scores in a range where we expect that a good or bad testing day could have reversed whether or not they met the cutoffs. Our results, however, can only be generalized to high-scoring Summer Bridge students; we do not know whether the sustainability of Summer Bridge gains would differ for students with lower skills. As we saw in Chapter 2, third graders with the lowest reading skills had the largest test-score gains in Summer Bridge.

There are two reasons that we did not include an analysis of test-score gains among students with lower test scores. First, as described in Chapter 2 (see sidebar, page 43), over a quarter of third graders in Summer Bridge had test scores at or below the level of chance on the Iowa Tests of Basic Skills (ITBS), making analysis of their long-term learning gains problematic. In addition, many students who had pre-Summer Bridge test scores below 2.5 were retained after the summer. This means we would be comparing students who had similarly low scores but those in the post-policy group would have been retained while those from before the policy would not have been.

In order to separate the effects of retention from the effects of Summer Bridge, we chose to limit our analysis to high-scoring students, most of whom were promoted either because they met the test-score cutoff after Summer Bridge or because their test scores were close enough to be promoted by alternate criteria. Although we excluded the small proportion of high-scoring students who were retained from this analysis, we did conduct the analysis with retained students and found similar results. As an additional check, we also examined the one-year sustainability of Summer Bridge results in 2000. As described in Chapter 1, in 2000, the promotion policy was altered to include a range around the test-score cutoffs. Thus, all of the students in our high-scoring group were promoted whether or not they met the cutoffs at the end of the summer. One-year effects for 2000 are quite comparable to those found in 1997 and 1998, confirming that our results are not driven by the exclusion of retained students from the analysis.

Our results differ slightly from an analysis of Summer Bridge sustainability conducted by Brian Jacob and Lars Lefgren. Jacob and Lefgren used the "discontinuity" created by the promotional test-score cutoffs to estimate a two-stage model that predicted the probability of attending Summer Bridge. They then estimated the effect of the program on achievement for students who were within one standard deviation of the cutoff on the basis of the probability of attending Summer Bridge as well as prior test scores. They found that Summer Bridge increased the subsequent test performance of third graders but not sixth graders. In essence, their findings were similar to ours in that they found that learning gains for low-achieving third graders who attended Summer Bridge were higher two years later than gains for students above the cutoff who did not attend Summer Bridge. They did not find evidence for sustainability in the sixth grade, however. This difference in our findings most likely occurs because Jacob and Lefgren looked at students only in 1997 and 1998 and did not include a pre-policy comparison. As seen in Figure 6-5, two-year learning gains post Summer Bridge were smaller for sixth graders. In the absence of the policy we would have expected the gap to widen slightly; however, the pre-policy comparison suggests that third-grade students just below the cutoff might have had greater test-score gains regardless of Summer Bridge. Thus, adding the pre-policy comparison increases our estimates of Summer Bridge sustainability for the sixth grade but decreases estimates for the third grade.

comparable across time and within and across levels.[6] In this chapter, we report results in this Rasch metric. The analysis was also conducted using GEs and results were comparable.

Test-Score Trends in 1997 and 1998 for Summer Bridge High Scorers and the Comparison Group

The assumption behind our analysis is that students who score slightly above the cutoff are similar to those who score slightly below, and that the primary difference between them is that one group attended Summer Bridge and the other did not.

In the third and sixth grades in 1997 and 1998, the demographic characteristics of these two groups were roughly similar (see Figure 6-1). Although there were slightly more African-American students in the Summer Bridge group than in the comparison group, the difference was small. In both the GE and Rasch metrics (logits), the prior year (second and fifth grade) test scores of the comparison group were slightly higher than those of the Summer Bridge high scorers. In the GE metric, students who attended Summer Bridge and scored just below the cutoff had prior year (second and fifth grade) test scores that were, on average, two months below students in the comparison group. Thus, test scores for Summer Bridge high scorers were slightly below the comparison group both in the testing year and in the prior year.

FIGURE 6-1

Summer Bridge High Scorers and Students in the Comparison Group Have Similar Demographics

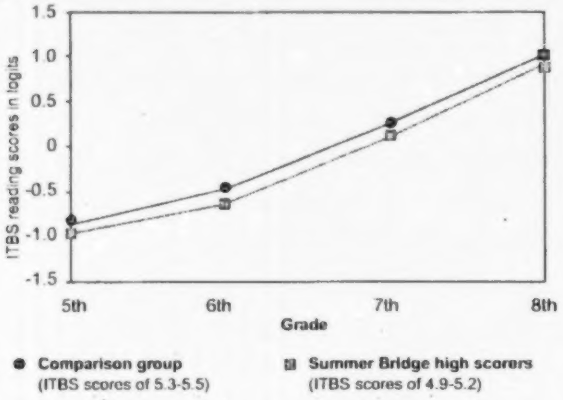
Third grade	1997 Summer Bridge high scorers	Comparison group	1998 Summer Bridge high scorers	Comparison group
Average 2nd grade reading	2	2.2	2	2.2
African-American	75%	72%	79%	75%
Latino	16%	18%	17%	18%
Free lunch	92%	91%	92%	92%
Sixth grade	**1997 Summer Bridge high scorers**	**Comparison group**	**1998 Summer Bridge high scorers**	**Comparison group**
Average 5th grade reading	4.4	4.6	4.5	4.7
African-American	64%	59%	54%	56%
Latino	30%	34%	40%	37%
Free lunch	93%	93%	92%	93%

Figures 6-2a and 6-2b show test-score trends for both Summer Bridge high scorers and the comparison group, charting growth from one year prior to the promotional gate grade (fifth grade) through two years after Summer Bridge participation (seventh and eighth grades).

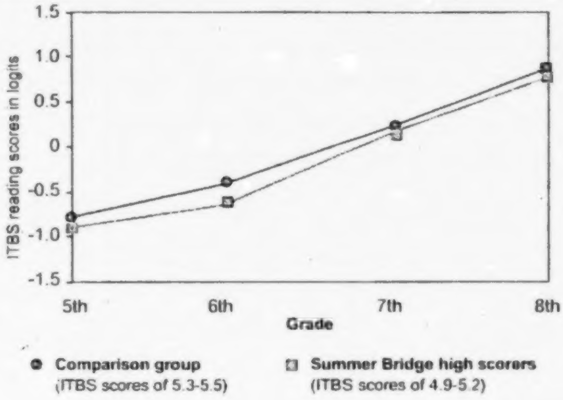
The data indicate that students in the higher-scoring Summer Bridge group followed the program with relatively higher ITBS scores, narrowing the gap between themselves and the comparison group. At the same time, we also see that Summer Bridge students tended to have very poor sixth-grade years, and that the gap between Summer Bridge high scorers and the comparison group was wider in the sixth grade than in the fifth. One interpretation of the pattern of the poor sixth grade followed by a good seventh grade is that Summer Bridge allowed those students who had a bad year to catch up and close the gap between themselves and their classmates. Another interpretation is that many students are required to attend Summer Bridge because of bad test days (and, therefore, scores that underestimate their true ability) and post-Summer Bridge learning gains are inflated due to a poor sixth-grade score followed by a better seventh-grade score. If we compare only pre-(fifth grade) and post-(eighth grade) test performance for the two groups, we see that students in the Summer Bridge high scoring group had slightly higher average learning gains than the comparison group (0.03 logits in 1997 and 0.04 logits in 1998, or about 7 percent of the average learning gains from sixth to seventh grades, see Appendix K).

The trend for third grade is very similar. Third graders in the Summer Bridge high scorers group were below the comparison group in second grade and that gap widened during third grade (see Figures 6-3a and 6-3b). Students who attended Summer Bridge, however, tended to have better post-Summer Bridge years and maintained these gains so that by the fourth and fifth grades they closed the gap between themselves and the comparison group.

FIGURES 6-2A AND B

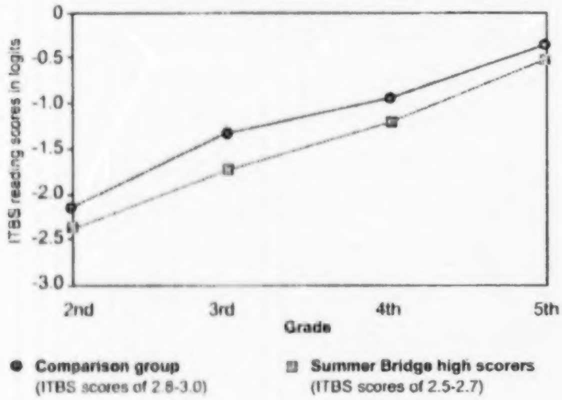


Trends in ITBS Reading Scores of 1997 Sixth-Grade Summer Bridge High Scorers and 1997 Comparison Group

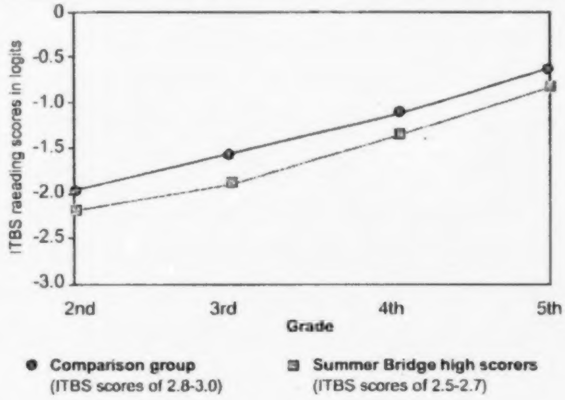


Trends in ITBS Reading Scores of 1998 Sixth-Grade Summer Bridge High Scorers and 1998 Comparison Group

FIGURES 6-3A AND B



Trends in ITBS Reading Scores of 1997 Third-Grade Summer Bridge High Scorers and 1997 Comparison Group



Trends in ITBS Reading Scores of 1998 Third-Grade Summer Bridge High Scorers and 1998 Comparison Group

Trends in Pre-Summer Bridge Years

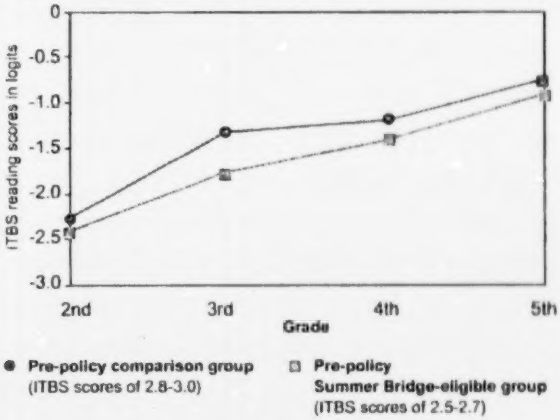
How much of the test-score improvement among students in the Summer Bridge high scorer group is due to the effect of the program, and how much is attributable to regression to the mean that may have occurred regardless of participation? We gain some insight if we look at groups of similar students from before Summer Bridge was implemented. If the narrowing of the gap that we observe is simply the result of maturation or regression to the mean, we would expect to see similar trends for students with test scores just above and below the cutoff before CPS initiated its efforts to end social promotion in the 1996-97 school year. The comparison groups comprise third and sixth graders in 1993 and 1994. Because these students were in the key grades during predominantly non-policy years, they provide an adequate comparison group for what might occur in the absence of the policy.[7]

As in our previous analysis, we looked at four-year learning trends among students who were in the third and sixth grades in 1993 and 1994 and whose test scores fell slightly above and below the cutoff (see Figures 6-4a and 6-4b). Our pre-policy Summer Bridge-eligible group is those students who scored just below the promotional gate cutoff but did not attend Summer Bridge in 1993 and 1994, and our pre-policy comparison group is those students who scored slightly above the test-score cutoff in both years.

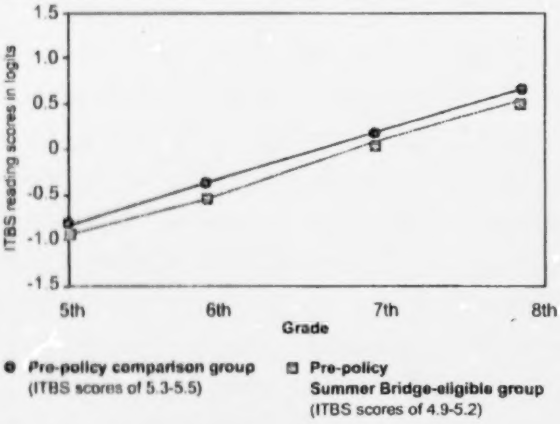
Comparing the pre-policy group's trends to those of the post-policy group gives us insight into the extent to which the gains made by Summer Bridge students can be attributed to regression to the mean. If Summer Bridge gains were due to regression to the mean, we would expect that the gap between the two pre-policy groups would narrow as the gap between the post-policy groups did. When we look at the gains for the first year after sixth grade only, regression to the mean looks like a plausible explanation, as the pre-policy Summer Bridge-eligible group narrowed the gap to the comparison group, which is similar to what we saw with the post-policy groups. However, if we examine more long-term trends, from fifth to eighth grades, we see that the gap between the 1993 pre-policy Summer Bridge-eligible group and the comparison group widens very slightly instead of narrows. In addition, in contrast to the post-policy groups, the two groups show almost identical gains (Rasch scores of 1.47 for the Summer Bridge-eligible group and 1.48 for the comparison group). We see similar trends when we compare our pre- and post-policy

FIGURES 6-4A AND B

Trends in ITBS Reading Scores of 1993 Third-Grade Pre-Policy Summer Bridge-Eligible Group and 1993 Comparison Group



Trends in ITBS Reading Scores of 1993 Sixth-Grade Pre-Policy Summer Bridge-Eligible Group and 1993 Comparison Group



Note: The pre-policy Summer Bridge-eligible group consists of those students in 1993 who would have had to attend Summer Bridge if the policy had been in place. Trends were similar for 1994.

third-grade groups. Unlike the post-policy groups, which converge, the two pre-policy groups have similar gains and a slight widening of the gap. Because the pre- and post-policy groups show different patterns, it appears that the gains of the Summer Bridge group are not due to regression to the mean.

Comparing Trends before and after 1996: Are Summer Bridge Gains Sustainable?

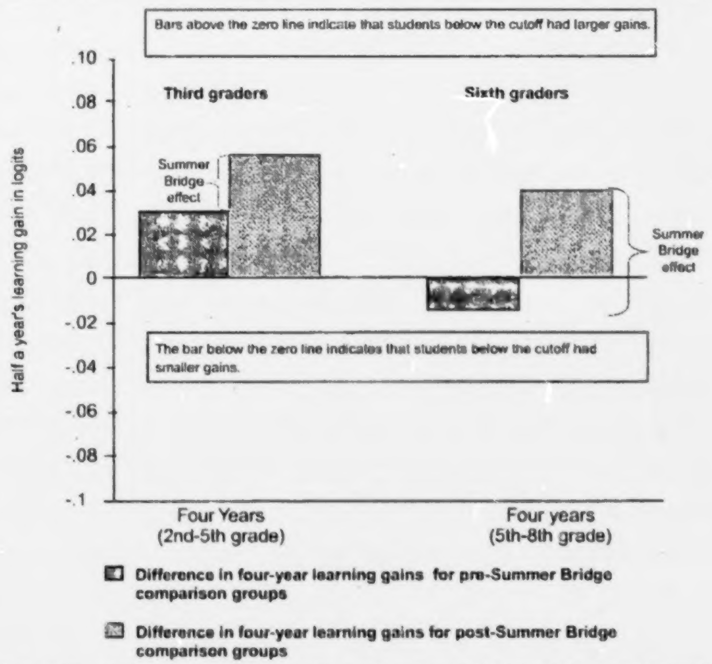
When we look at test-score trends for students one year prior to and then two years after third grade, we find that students who attended Summer Bridge had slightly larger average ITBS gains in the two years after Summer Bridge than students who were just above the cutoff. We also see that the difference between the four-year learning gains of students just below and above the cutoff was a little bit larger after 1996, when students attended Summer Bridge, than before. For example, the 1998 third graders in our Summer Bridge high-scoring group had an average gain in the two years after Summer Bridge of 0.55 in the Rasch metric compared to 0.47 for the comparison group. Average learning gains for these students were 17 percent higher than those for the comparison group. If we look at these students' four-year learning gains (second to fifth grade), which account for the fact that Summer Bridge students had very poor third-grade gains, we find that the four-year learning gains are slightly higher for the Summer Bridge high scorers (see Figure 6-5).

Although positive, these findings on the sustainability of Summer Bridge gains are modest. First, we do not find evidence that Summer Bridge high scorers did better than students with slightly higher test scores who did not attend the program. At best, it appears that Summer Bridge allowed these students to narrow the gap between themselves and students slightly above the cutoff. Using the 1993 and 1994 groups as a comparison for what we would expect in the absence of Summer Bridge, we estimate that sixth graders with test scores just below the cutoff would have learning gains approximately 0.02 logits lower than students just above the cutoff between the end of fifth and the end of eighth grade. In 1998, sixth graders who attended Summer Bridge and whose reading scores were just below the cutoff increased their test scores by 0.04 logits or about 7 percent of an average one-year learning gain more than the comparison group. Taking the average of the pre- and post-policy effects, we estimate that Summer Bridge students outpaced similar students by approximately 0.05 logits. This translates into an

FIGURE 6-5

After Four Years, There is Modest Evidence that Summer Bridge Gains Are Sustained

Differences in Learning Gains of Students Just Above and Just Below Promotional Cutoffs in pre-and post-Summer Bridge Groups



The difference in the pre-policy four-year gains are an average of 1993 and 1994. The difference in the post-policy four-year gains are an average of 1997 and 1998. Four-year gains are ITBS reading gains (logits). See Appendix K.

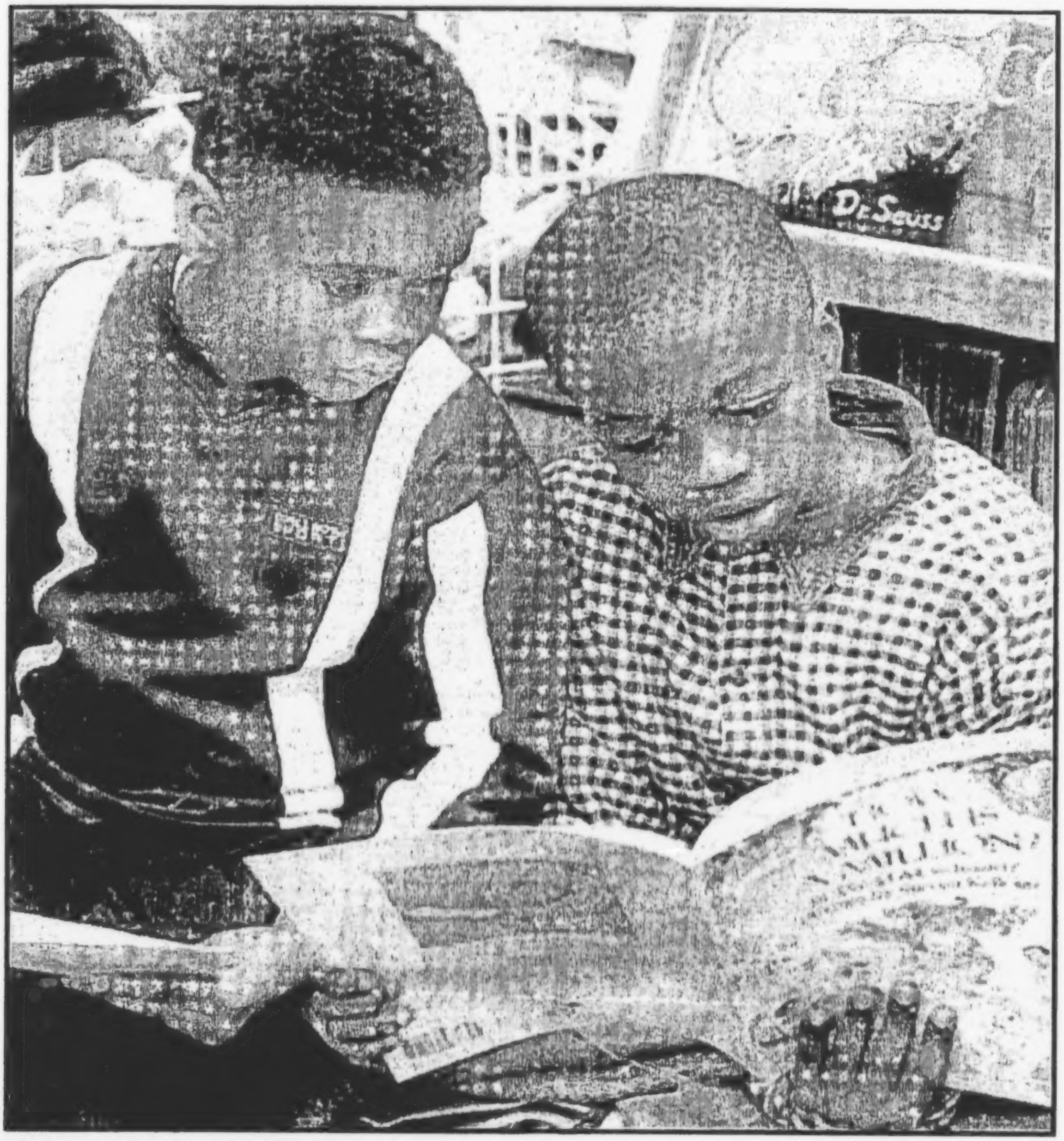
11 percent increase in average one-year learning gains for these students.[8]

What Have We Learned about Sustainability?

In this chapter, we looked at whether students attending the Summer Bridge program did better in the following years than students with similar test scores who did not participate. We defined sustainability as maintaining Summer Bridge learning gains on future ITBS exams. We found some evidence for this type of sustainability, although the benefits are modest. Third graders who attended Summer Bridge had larger reading gains between second and fifth grade than students who scored slightly above the cutoff, even though their adjusted Summer Bridge test-score gains were small. Our sixth-grade Summer Bridge group, which had large adjusted Summer Bridge test-score gains, did appear to have larger test-score gains between fifth and eighth grade than students in the comparison group. Still, despite the larger test-score gains, students in the Summer Bridge group continued to lag slightly behind their peers with similar scores who did not have the benefit of extra instruction in Summer Bridge.

Taking the average of the pre- (1993 and 1994) and post- (1997 and 1998) policy effects, we estimate that Summer Bridge students improved their learning gains, but they did not accelerate their rate of learning in subsequent years. It appears that Summer Bridge provided a one-time boost that allowed these students to narrow the gap between themselves and other low-performing students but did not substantially change their performance in school. Our analysis of sustainability was limited to the highest scoring Summer Bridge students, however, and the program may have had a different effect on lower-achieving students.

In this chapter, we addressed concerns that the positive effect of the Summer Bridge program on test-score gains would disappear over time. We found evidence for the sustainability of these gains, although the effect was limited to a modest one-time boost in ITBS scores. One interpretation of the results from this chapter is that students in Summer Bridge learned to take the ITBS and did not forget these skills the next time they took the test. Another interpretation is that Summer Bridge provided a critical intervention for students who were falling behind and allowed them to catch up to their classmates with similar achievement. In any case, the long-term benefits of Summer Bridge, at least in terms of test-score gains, are modest.



John Booz

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INTERPRETIVE SUMMARY

In this report, we have attempted to take a multi-faceted and rigorous look at Chicago's Summer Bridge program. Our interpretive summary focuses on two primary questions: First, what did we learn about the potential role of summer programs in supporting students under high-stakes testing? And, second, what do the results of Summer Bridge tell us more generally about addressing the needs of low-achieving students?

The Effects of Summer Bridge

The goal of Summer Bridge is to provide students with extra support and a second chance to meet CPS test-score cutoffs for promotion. Summer Bridge has been effective in the short run in producing test-score gains, particularly among sixth and eighth graders, and in allowing more students to meet the cutoffs. Our results suggest that summer programs may be a promising approach to providing students with extra instructional time and remedial support to meet the demands of high-stakes testing. Sixth and eighth graders experienced substantial test-score gains when they were retested at the end of the relatively brief program. In the third, sixth, and eighth grades, the rate at which Summer Bridge students increased their test scores was above that experienced by the same students during the regular school year.

We found little evidence to support one of the main concerns about the use of summer programs for students under high-stakes testing: namely that such programs will produce benefits only for students who are close to the cutoffs. Third-grade students who were at the highest risk of failure benefited the most from Summer Bridge. Sixth and eighth graders at the highest risk had large test-score gains, although these were not as large as those of students at more moderate risk. Indeed, one of the most positive

One of the most important conclusions of our analysis is that low-achieving students responded positively to an opportunity for summer support.

findings in this report is that Summer Bridge produced relatively uniform gains across demographic and achievement groups.

Students were extremely positive about their experiences in Summer Bridge. Sixth and eighth graders portrayed their Summer Bridge classrooms as environments where they were expected to work hard. They also reported that their teachers were supportive. Most importantly, we found that students who attended Summer Bridge were significantly more positive in the summer than in the school year about the academic environment of their classrooms and the attention they received from teachers. The program also had high attendance rates. Thus, students not only had test-score gains in Summer Bridge, they also experienced the program as a more positive educational environment than their school year classrooms. One of the most important conclusions of our analysis is that low-achieving students responded positively to an opportunity for summer support.

Part of students' perceptions of the program reflect the fact that teachers reported providing high levels of support and working to adapt the curriculum to students' needs. Our analysis of instruction suggests that Summer Bridge classrooms provided more focused instructional time than during the school year. Thus, analysis and teacher reports regarding their own behavior confirmed that students were, in fact, receiving more personalized attention and greater academic press in the program.

There is also evidence that Summer Bridge students had slightly larger learning gains over two years than students who were close to the cutoffs and did not attend the program. While these results are encouraging, the effects were small. Summer Bridge did not substantially alter low-achieving students' school year learning rates. It appeared to help keep these students on track, but did not change their learning trajectories. The program provided a short term intervention that allowed low-achieving students to raise their test scores and seemed to provide an extra boost that kept them from falling further behind.

These results are quite promising. They address several issues that Chicago or other school systems must consider when designing summer programs under high-stakes testing.

Issue 1: Administrators of summer programs need to be concerned about variation in school effects.

We found that higher achieving schools in Chicago ran more effective programs. Students who attended Summer Bridge in schools with higher school year achievement had larger test-score gains than students in lower performing schools. These differences were most pronounced in the third grade. Teachers in higher performing schools were more positive about the learning environment in Summer Bridge and reported more attention to the individual needs of students. These practices were associated with larger adjusted test-score increases. Thus, we do not find that Summer Bridge, even with its mandatory curricula and uniform materials, ameliorated differences in school quality. How can we explain the more positive practices and teacher assessments of Summer Bridge in higher performing schools? Even within this highly centralized program, schools continue to have wide flexibility in making staffing decisions and in other areas of implementation. Schools with more effective instructional environments or more highly qualified staff may simply be better equipped to run effective summer programs.

Issue 2: Summer program administrators need to address staffing and staff development issues.

Our analysis of instruction and teacher practice in Summer Bridge suggests that the Summer Bridge curriculum did, in fact, contribute to consistency in the topics that were covered, pacing, and the skill focus in classrooms. For the most part, teachers followed the curriculum. This seemed to play a critical role in ensuring exposure to similar content across classrooms. We still found differences across classrooms in instruction, however. A key finding in this area is that whether teachers knew their students before Summer Bridge was an important predictor of test-score increases, student perceptions of support in the program, and teacher practice. Teachers who knew a large proportion of their Summer Bridge students beforehand were more likely to report adapting the curriculum to meet students' needs and to work more closely with students outside of class time. These effects were most pronounced for older students. These results suggest that summer programs may be more effective when teachers know their students, are familiar with their learning styles and behaviors, and are able to extend school year relationships into the summer. It may be critical, particularly for low-achieving adolescents, to have teachers who know them and can motivate them while addressing their individual learning needs. In high-stakes testing environments, strong connections between students and teachers may also serve as a motivating factor for teachers.

Our observations of instruction showed that the quality of interactions between teachers and students was a distinguishing factor between the most effective Summer Bridge classrooms and the average classroom. We also found an association between the quality of instruction in Summer Bridge and students' test-score gains. A relatively small proportion of teachers taught in ways that engaged students, provided substantive feedback, and worked to address individual learning needs. We found that teachers who provided this tailored instruction did not differ from other teachers in how they followed the curriculum, the skills they emphasized, or the way they grouped students for instruction. Rather, differences in the instructional environments in Summer Bridge classrooms reflected the quality of interactions between students and teachers—not activities that could easily be added to next year's curriculum.

Variation in teacher quality at the low end was also important. Despite the curriculum and small class sizes, teachers who lacked classroom management skills, content knowledge, teaching expertise, and a commitment to their students simply did not deliver. Poor teaching is never acceptable, but in a high-stakes testing environment with short program duration, it truly sells students short. We observed low-quality teaching in about 20 to 25 percent of classrooms. Program leaders need to monitor classrooms early and intervene when there is evidence of low-quality teaching.

Finally, teachers in Summer Bridge followed the daily lessons but did not implement the curriculum's emphasis on using a variety of student grouping configurations for instruction and activities. Despite the small classes and despite the fact that many teachers reported that they were attempting to meet individual student needs, most Summer Bridge teachers relied on traditional, whole-class instruction and individual skills practice. This suggests that summer programs need to provide extensive staff training and support if teachers are to move away from traditional whole-class instruction to garner all of the benefits of the small classes.

Issue 3: The effectiveness of Summer Bridge differs when gains and promotion rates are compared.

The goal of a remedial summer school program is to improve student achievement. In a high-stakes testing environment, however, expectations become more complicated—if students' test scores are increasing but they fail to meet the test-score cutoffs, is the program a success or a failure? We found that Summer Bridge students had substantial test-score gains, regardless of

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how far below the cutoffs they were when they entered the program. However, the students who were furthest behind at the start of the program were the least likely to meet the cutoffs, even with very large Summer Bridge test-score gains. Is it fair to require students to attend a summer program and work hard when promotion to the next grade may be virtually unobtainable for those with the lowest skills? Promotion did seem to be out of reach for Chicago's lowest skilled students until 2000, when the school system expanded the promotional criteria. On the other hand, if students know that their test scores are not important (because they will be promoted regardless), they may be less motivated to work hard. Thus, summer program policies need to be structured to balance the incentive to work hard with the possibility of success.

> *. . . our analysis suggests that part of the reason why students did well in Summer Bridge was because it contrasted dramatically with their school year experiences. Not surprisingly, when Summer Bridge students return to regular school year environments, they appear to return to their previous learning rates.*

Issue 4: Summer Bridge produced short-term test-score gains but did not significantly address the ongoing learning problems of low-achieving students.

Students who participated in Summer Bridge had slightly larger learning gains two years after the program than students just above the test-score cutoffs who did not participate. However, Summer Bridge did not change these students' learning trajectories, nor did it address the fact that they continued to have low skills compared to other students. Summer Bridge does not change students' experiences during the school year. Indeed, our analysis suggests that part of the reason why students did well in Summer Bridge was because it contrasted dramatically with their school year experiences. Not surprisingly, when Summer Bridge students return to regular school year environments, they appear to return to their previous learning rates. Thus, although summer programs may be a useful approach for supporting students under high-stakes testing, there is less evidence that one year of Summer Bridge is an effective means for addressing the long-term learning needs of low-achieving students. A question that arises is whether these students could benefit from multiple years of participation in remedial summer school.

Issue 5: Summer Bridge effects differ across grades.

Specifically, third-grade results differed from those for the sixth and eighth grades. Adjusted test-score increases were smaller in the third grade. Teachers in the third grade were less positive about the curriculum and seemed to struggle with how to adapt it to meet students' needs. Third-grade teachers were also less likely to work individually with students and to provide support both in and outside of the classroom. They also knew fewer of their students before Summer Bridge.

Throughout our work in evaluating Chicago's efforts to end social promotion, we have consistently found less positive results in the third grade. Third graders have the highest rates of retention. Although there is evidence that test scores increased following the institution of high-stakes testing, effects were significantly smaller in the third grade.[1] Third-grade results in Summer Bridge mirror our finding that high-stakes testing is less effective for younger students. We do not know whether this finding reflects the importance of motivation and the threat of retention in shaping student and teacher behavior, or a mismatch between Chicago's reliance on the ITBS and the needs of low-achieving younger students. Third graders may be less likely to respond to high-stakes testing with efforts that lead to improved achievement. It may also be more difficult for teachers to address young students' substantial reading and mathematics problems in ways that result in test-score increases in a short period of time.

It is possible that Chicago's exclusive use of the ITBS leads to a narrow focus on reading comprehension that may not address the more basic reading skills deficits of low-achieving third graders. Perhaps only with a substantial altering of the assessments used, teacher training, the curriculum, and a shift in focus to working on diagnosing early reading problems could summer programs be more effective for these students.

Third-grade results in Summer Bridge mirror our finding that high-stakes testing is less effective for younger students.

How Can We Generalize?

To what extent is Summer Bridge replicable in other school systems? Specifically, what programmatic components (such as small class size, a curriculum aligned with the ITBS, the mandatory high-stakes approach) contribute to test-score gains, teacher behavior, and student experiences? Although our analysis addresses these issues, it does not resolve them. There are four critical components of Summer Bridge that may shape its impact.

1. How important is class size?

The reduced class size of Summer Bridge is one of the most expensive components of the program. It is also an aspect of Summer Bridge that is most supported in prior research. Would a similar program with larger class sizes still give students the sense that they were receiving personalized support? How critical was the reduced class size both in recruiting teachers for the program and allowing them to work more closely with students, particularly given the need to provide a lot of individualized attention? Because class sizes in Summer Bridge were so small, there was not enough variation within the program to answer these questions.

2. How critical is the curriculum?

We identified two ways that a standardized curriculum could shape both adjusted learning gains and instruction in Summer Bridge. First, the curriculum and its high alignment with the ITBS may be an important factor in producing large test-score gains in the program. On the one hand, critics of high-stakes testing would argue that this high alignment reflects "teaching to the test" and would not lead to learning gains that are generalizable to other assessments. On the other hand, these results may be taken as evidence that summer programs with clearly defined instructional objectives and assessments that measure the skills taught in the program are effective. In high-stakes testing environments, such alignment may be critical to providing all students the opportunity to succeed. It makes no sense to hold students accountable for skills that have not been taught. A carefully chosen assessment, decisions about what skills to address, and the use of a curriculum and materials that focus on those skills should be central concerns in designing summer programs under high-stakes testing.

A second way that the curriculum may be important in shaping the effects of Summer Bridge is in providing an incentive for teachers to teach in the program

> *Rather than viewing the curriculum as a constraint, Summer Bridge teachers were positive about the content and the materials they were provided.*

and the supports they need to help low-achieving students. Teachers relied heavily on the curriculum, following the daily lesson plans and keeping up with the prescribed pace. Rather than viewing the curriculum as a constraint, Summer Bridge teachers were positive about the content and the materials they were provided. We do not know what effect running such a program without a prescribed curriculum would have on recruitment of teachers or on their ability to provide instruction.

3. Is the effectiveness of Summer Bridge the result of high-stakes testing?

The high-stakes testing environment can be thought of as a programmatic component of Summer Bridge. Throughout this report, we have highlighted the idea that student motivation may play a role in the magnitude of gains we observe in the program. Motivational responses that result in students exerting extra effort on the day of the test would lead to overestimates of the program's impact. However, motivational responses that result in students working harder in school throughout the summer suggest that high-stakes testing environments may be critical in shaping summer program effects. Would we have observed these gains if students were not required to attend? Would we have observed them if students did not face the threat of retention? Finally, would teacher behavior change if students did not face such high stakes?

As the new federal legislation on testing takes hold, many school districts will be under pressure to raise test scores among low-achieving students. Our findings on the effects of Summer Bridge should not be taken as evidence that summer programs are a way to raise test scores when stakes are established for the school, rather than for the student.

4. How critical is administrative and fiscal support?

While our analysis provides a very comprehensive evaluation of Summer Bridge, it is a look at only one program embedded in a very specific policy initiative. Part of the context of Summer Bridge was the significant administrative and financial support given to the program. Chicago's effort to end social promotion was the administration's central policy focus, and Summer Bridge was seen as a core component of that initiative. The initiative's high profile garnered substantial administrative attention for Summer Bridge and led to the provision of significant resources for improving the test scores of the lowest performing students. Summer Bridge is also embedded in a larger accountability program that led to a general focus on improving test scores. Thus, part of the success of Summer Bridge may be dependent upon its perceived importance on the part of administrators, schools, and teachers.

Policy Tradeoffs

This report examines the potential for summer school to provide short-term support for students. Policy decisions in large school systems always require choosing among an array of options. Summer programs are costly and take resources away from activities such as professional development that often occur during that time. We do not analyze the cost effectiveness of Summer Bridge. This would require comparing the program to alternative approaches to raising achievement through such things as early intervention, pre-school, and professional development, or through school year investments in curricula, materials, and class size reductions for low-skilled students.

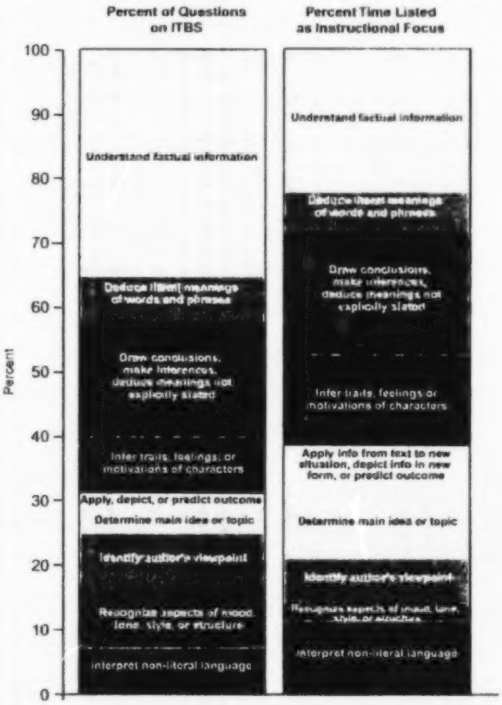
We find that although summer programs may be a useful intervention for students who are behind, they are not a substitute for effective instruction during the school year. There is no evidence that Summer Bridge affected school year learning rates. The caveat to this conclusion is that we do not know if teachers' experiences in Summer Bridge led to changes in their school year practice. Summer Bridge was not designed explicitly to lead to changes in school year instruction, although this may be a promising route to take in the future. What we have learned is that summer can provide an opportunity for teachers to work closely with students in an environment that is different from the school year and can benefit students who are in need of extra support. A promising next step might be to increase instructional innovation and professional development in Summer Bridge so that teachers are exposed to new methods that could benefit their efforts during the school year.

John Booz

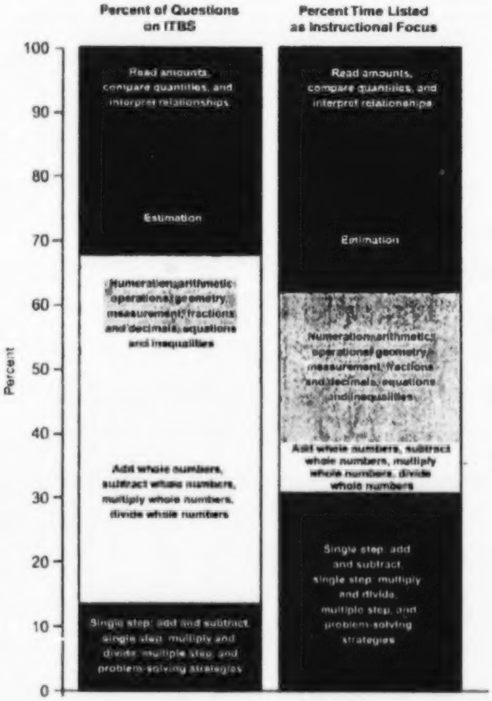
APPENDICES

Appendix A

Instructional Foci from Summer Bridge Curriculum
Sixth-Grade Reading

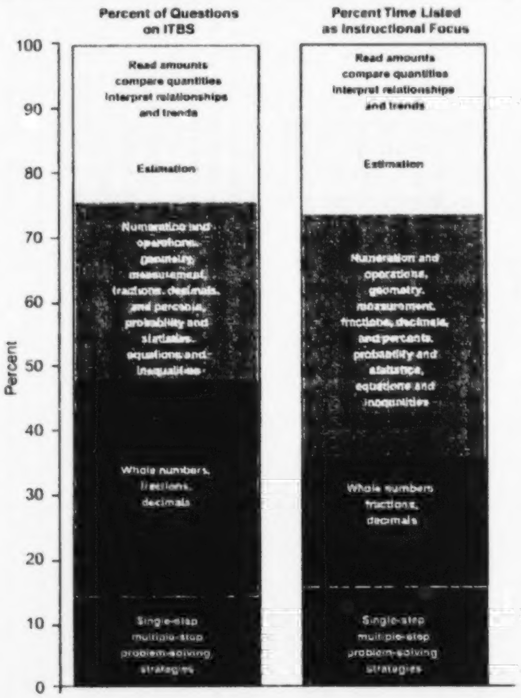


Instructional Foci from Summer Bridge Curriculum
Third-Grade Mathematics

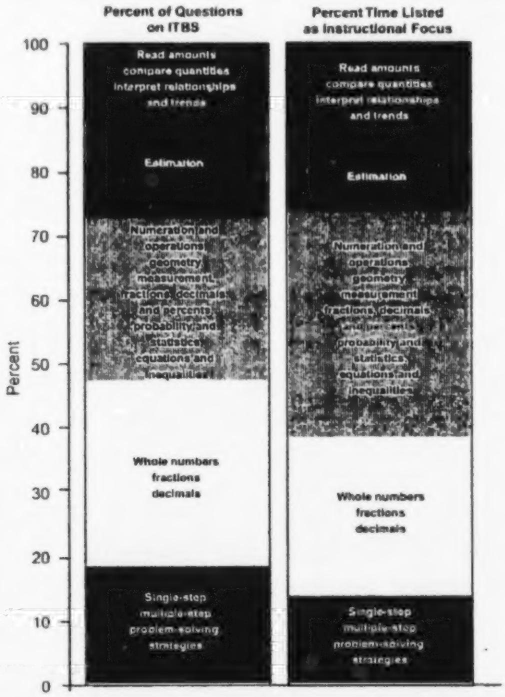


Analysis was conducted on the 1999 Summer Bridge curriculum. For reading, we report the breakdown of questions on the ITBS as provided in the Summer Bridge Curriculum. For math, we referred to the booklet titled "Iowa Tests of Basic Skills: Content Classifications with Item Norms." Percent time listed as instructional focus was obtained from a count of the proportion of days in which the focus is listed. When there were multiple foci, a weighted average was calculated.

Instructional Foci from Summer Bridge Curriculum
Sixth-Grade Mathematics



Instructional Foci from Summer Bridge Curriculum
Eighth-Grade Mathematics



Analysis was conducted on the 1999 Summer Bridge curriculum. For reading, we report the breakdown of questions on the ITBS as provided in the Summer Bridge Curriculum. For math, we referred to the booklet titled "Iowa Tests of Basic Skills: Content Classifications with Item Norms." Percent time listed as instructional focus was obtained from a count of the proportion of days in which the focus is listed. When there were multiple foci, a weighted average was calculated.

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Appendix B

The Summer Bridge mathematics curriculum was initially organized like the reading curriculum, drawing on a variety of workbooks and texts. The curriculum was rewritten in 2000 for the sixth and eighth grades (third remained the same) so that fewer workbooks were used and the curriculum was more self-contained. Most teacher-directed activities and student lessons were provided in one set of materials, and teachers had more flexibility in pacing the curriculum. We provide examples of typical lesson plans from the Summer Bridge third, sixth-, and eighth-grade mathematics curriculum.

Sample Daily Lesson Plan from the Summer Bridge Curriculum, 1999 Lesson: 19
Third-Grade Mathematics

Instructional Focus

Data Interpretation - Bar Graphs

Teacher-Directed Activity

Just the facts!! Write the following words on the chalkboard:

data key pictograph table tally mark

Read the following and have students raise their hands to fill in the blanks:
1. Information about people or things that can be organized and sorted is called ______. (data)
2. A graph that shows data by using pictures that stand for more than one thing is a ______. (pictograph)
3. You can organize data in a ______. (table)
4. A ______ at the bottom of a pictograph tells how many each picture stands for. (key)
5. A ______ ______ is used to count data. (tally mark)

Daily Challenge

Ask: *Which food do you like best—hot dogs, hamburgers, tacos, or pizza?*
Have students raise their hands to show their vote. Record on the chalkboard each food item and the count.

Tell the students we will use a bar graph to record our data today. Have the students look up bar graph in their "Math Tools." Ask a volunteer to read the definition. Explain that a bar graph has a scale of numbers to help read what each bar shows. The bars can be horizontal or vertical. Horizontal bars go across from left to right. In a vertical bar graph, the bars go up.

Write the following title on the chalkboard: Our Favorite Foods
Ask: *What will our labels be?* (Answer: Hot dogs, hamburgers, tacos, pizzas.)

Use 2s for the number scale. Develop a bar graph on the chalkboard using the data already listed on the chalkboard.

Ask the following questions:
1. *How many students picked hot dogs as their favorite food?* (4)
2. *Which food is liked the best by the most students?* (pizza)
3. *What scale is used on the bar graph?* (numbers by 2s)
4. *What type of bar graph is this?* (horizontal)

Have the students open their *Take Another Look* to pp. 92-93. Read and discuss the top of the pages with the class. Work through the problems with the class.

Taking A Break

Divide the class into groups of 4. Have half the class develop a horizontal bar graph and the other half of the class develop a vertical bar graph describing the class's "Favorite Sports."

Test Prep

Have students open *Get Ahead in Math* to p.47. Read and discuss the Mini-Lesson with the class. The students should use "Math Tools" to review the vocabulary terms. Work through each problem in Practice. Allow students time to solve the problems. Discuss the solutions as a class. Assign Test Yourself. Have students use the answer box for the answers.

Source: Chicago Public Schools 1999 Summer Bridge Teacher Handbook, Grade 3. Lessons have been condensed.

Lesson: 12

Sample Daily Lesson Plan from the Summer Bridge Curriculum, 2000

Sixth-Grade Mathematics

Instructional Focus

Data Interpretation - Bar Graphs

- Read and interpret bar graphs to solve problems.
- Compare information on bar graphs.
- Analyze patterns and trends, and predict changes based on data found in bar graphs.

Concepts: Reading Bar Graphs

Point out bar graphs provide a good visual picture of data.

Suggestions

Before you work through the examples on this page, be sure that students are reading the bar graphs correctly.

If students are having difficulty reading across to the number on the vertical axis, encourage them to lay a ruler or other straight edge across the top of the bar.

Example: Students must identify the information to be compared on the graph. The example asks them to compare people in 1998; therefore, they should be looking only at the three bars for 1998.

Skills: Interpreting Bar Graphs

Explain to students that some bar graphs can show trends in the data. For example, are the data generally rising or falling? So, a graph can sometimes be used to predict the future.

Example: Point out that the questions they will be doing call for a prediction of the future, so students will have to find a trend in the data and continue that trend into the year 2000. Remind students to focus on which particular bars they should be examining or comparing.

Problem Solving Interpreting Bar Graphs

Point out that the vertical axis is in thousands. Therefore, the line labeled 20 represents not 20, but 20,000.

Ask students how they would estimate the height of a bar that ends between two lines.

Skills Review

The problems on this page review skills introduced in this lesson and in earlier lessons and prompt students to:

- Read and interpret bar graphs.
- Compare data.
- Use inverse operations to find missing numbers in an equation.

Source: Chicago Public Schools 2000 Summer Bridge Teacher Handook, Grade 6. Lessons have been condensed

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Lesson: 5

Sample Daily Lesson Plan from the Summer Bridge Curriculum, 2000

Eighth-Grade Mathematics

Instructional Focus

Data Interpretation—100 Percent Bar Graphs

- Interpret 100 percent bar graphs and their keys.
- Estimate the size of each section on a 100 percent bar graph.
- Compare the sizes of different sections for one time period or the same section for different time periods.
- Predict trends based on a comparison of data on 100 percent bar graph.

Concepts: Understanding a 100 percent Bar Graphs

Point out that on 100 percent bar graphs, since the length of each bar equals 100 percent, you compare amounts not by the length of the whole bar but by the length of each section that makes up the bar. You may want to draw the following graph (a typical bar graph) on the chalkboard to help students see how a 100 percent bar graph could be shown as separate bars.

Suggestions

Before students try to answer the questions shown in the examples, make certain that they can estimate the sections of each bar by asking questions such as these:

- In 1970, what percent of the school budget came from miscellaneous sources?
- In the same year, what percent came from the PTA?
- The PTA bar stops at about the 10 percent line. Why isn't the PTA percent 10 percent?

Explain that students can find each percent in the same way: by estimating where the line for that section begins and ends and subtracting the two numbers.

Skills: Reading a 100 Percent Bar Graph

Because this bar graph shows intervals of 20 percent, students may have trouble estimating the value of each section of each bar. For example, to find the percent spent for housing in 1985, students must first determine that the section begins between 60 percent and 80 percent. Next, they must realize that it begins closer to 80 percent than to 60 percent, so a good estimate is 75 percent.

Skills Review

The problems on this page review skills introduced in this lesson and prompt students to:

- Interpret 100 percent bar graphs and their keys.
- Estimate the size of each section on a bar graph.
- Compare the size of different sections for one time period or the same section for different time periods.
- Predict trends based on a comparison of data on a 100 percent bar graph.
- Solve word problems based on information in 100 percent bar graphs.

Source: Chicago Public Schools 2000 Summer Bridge Teacher Handbook, Grade 8. Lessons have been condensed.

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APPENDIX C

Methodology for Estimating Summer Bridge Test-Score Increases

Adjusted Summer Bridge learning gains are obtained by subtracting students' observed August test score from a predicted May test score. We obtain this predicted gain by estimating a student growth model through a hierarchical linear model (HLM) that uses data on a student's entire testing history and on the learning trends of students in both pre- (1992-1996) and post- (1997-1999) policy cohorts. A model is estimated separately for each grade (third, sixth, and eighth) and for each subject (reading and mathematics). The outcome variable is the student's test score in each year in that subject on the Iowa Tests of Basic Skills measured in the grade equivalent (GE) metric. For the purposes of illustration, we describe the sixth-grade model below.

Level 1 is a repeated measures model in which Y_{ijk} is the achievement at grade i, for student j in school k (the school attended in grade 6) as shown below:

$$(1) \qquad Y_{ijk} = \pi_{0jk} + \pi_{1jk}(\text{Grade}) + \pi_{2jk}(\text{Sixth}) + \pi_{3jk}(\text{Repeat}) + e_{ijk}$$

The grade variable is centered so that it takes on the value of zero in the fifth grade. Sixth is a dummy variable that equals one in the promotional gate grade and zero otherwise. The coefficient of this variable measures the extent to which the student's sixth-grade test score deviated from the score that would have been expected based on the student's initial status and learning trajectory up to that point. Repeat is a dummy variable that equals one when a pre-gate grade is repeated. This controls for any prior retention experience in estimating each individual's growth trajectory.

Level 2 models the coefficients from the individual growth trajectories as a function of student characteristics.

$$(2) \qquad \begin{aligned} \pi_{0jk} &= \beta_{00k} + \beta_{01k}(\text{Year94}) + \cdots + \beta_{06k}(\text{Year99}) + r_{0jk} \\ \pi_{1jk} &= \beta_{10k} + \beta_{11k}(\text{Year94}) + \cdots + \beta_{16k}(\text{Year99}) + r_{1jk} \\ \pi_{2jk} &= \beta_{20k} + \beta_{21k}(\text{Year94}) + \cdots + \beta_{26k}(\text{Year99}) + r_{2jk} \\ \pi_{3jk} &= \beta_{30k} \quad \text{(assumed fixed for simplicity)} \end{aligned}$$

Because the random effects—r_{0jk}, r_{1jk}, and r_{2jk}—allow the initial status, learning rate, and sixth-grade deviation to vary across students, we have a separate learning curve for each student. The year variables are dummy variables for each cohort in the sample. Year93 is omitted so the coefficients on the other year indicators represent the extent to which initial status and linear learning rate varied from 1993. Thus, this model allows us to estimate growth curves for each student across time, taking into account that cohort ability levels and achievement growth within grades may be changing over time because of more general changes in the school system (i.e., the effect of other reforms or general improvement in the school system in test scores, differences in cohort characteristics such as more affluent students entering the public school system, or the expansion of kindergarten or pre-kindergarten programs). In this model, the third or school level is left unconditional and simply serves to correctly estimate the standard errors.

Using the estimates from this model, we can calculate each student's predicted sixth-grade May test score as

$$(3)\quad \hat{Y}_{6jk} = \left(\pi_{0jk} + r^{*}_{0jk}\right) + \left(\pi_{1jk} + r^{*}_{1jk}\right)$$

where π_{0jk} and π_{1jk} are the predicted fifth-grade score and average annual learning gain respectively, based on the model above for students in a particular cohort and school, and r^{*}_{0jk} and r^{*}_{1jk} are estimated Bayes residuals for each student. For students who participated in Summer Bridge, the adjusted or "true" summer gain ($\Delta\tilde{Y}_{6jk}$) in the sixth grade is then calculated by subtracting their observed August test score ($Y_{6bridgejk}$) from their predicted May test score ($\hat{Y}_{6jk}$). We call this the adjusted summer gain.

$$(4)\quad \Delta\tilde{Y}_{6jk} = Y_{6bridgejk} - \hat{Y}_{6jk}$$

We use a slight variation of the model above to gain an estimated school-year gain for students who attended summer school. Rather than estimating cohort effects, in this second model we estimate a differential effect for students who attended summer school in each year. Thus, at the student level (Level 2) we replace equation 2 with:

$$\begin{array}{ll} & \pi_{0jk} = \beta_{00k} + \beta_{01k}(\text{Summer97})_{jk} + \beta_{02k}(\text{Summer98})_{jk} + \beta_{03k}(\text{Summer99})_{jk} + r_{ojk} \\ (5) & \pi_{1jk} = \beta_{10k} + \beta_{11k}(\text{Summer97})_{jk} + \beta_{12k}(\text{Summer98})_{jk} + \beta_{13k}(\text{Summer99})_{jk} + r_{1jk} \\ & \pi_{2jk} = \beta_{20k} + \beta_{21k}(\text{Summer97})_{jk} + \beta_{22k}(\text{Summer98})_{jk} + \beta_{23k}(\text{Summer99})_{jk} + r_{2jk} \\ & \pi_{3jk} = \beta_{30k} \quad \text{(assumed fixed for simplicity)} \end{array}$$

The average school year gain prior to the promotional gate grade for students who attended summer school in 1997 is then $\beta_{10k} + \beta_{11k}$

APPENDIX D

Methodology for Estimating Effects of Student and School Characteristics on Student Test-Score Gains

The statistical analysis reported in Chapter 2 is based on a two-level hierarchical linear model (HLM) of the adjusted Summer Bridge test-score gains. We used the same model for grades three, six, and eight for reading and mathematics.

At Level 1, the independent variables were dummies for being African-American, Latino, or male, an SES (socio-economic status) variable based on census information, age, and being at risk of retention based on prior achievement. High risk was defined as having a latent pre-test score a half year to one and a half years below the cutoff score and very high risk was having a latent pre-test score more than a year and a half below the cutoff score.

At Level 2, we used school- and grade-level predictors. Because we were unable to link students to their exact Summer Bridge teacher and classroom, we aggregated classroom information to the grade within the school. In many schools, the grade and classroom were the same, as the school had only one Summer Bridge classroom for that grade. For the teacher measures—evaluation of Summer Bridge curriculum and individualization of instruction—we took the mean of the teacher responses for that grade if there was more than one teacher per grade. The analysis used race and achievement levels of the school, programmatic characteristics (such as class size, having separate teachers for mathematics and reading, and the percentage of students that teachers knew prior to Summer Bridge), grade characteristics (such as passing and exclusion rates) and teacher characteristics (such as having a Master's degree or higher, having taught Summer Bridge before, years of teaching experience, and subject taught during the school year).

Level 1 (students):

$$Y_{ij} = \beta_{0j} + \beta_{1j}\,(\text{SES}) + \beta_{2j}\,(\text{African-American}) + \beta_{3j}\,(\text{Latino}) + \beta_{4j}\,(\text{Male}) + \beta_{5j}\,(\text{Attending Home School}) + \beta_{6j}\,(\text{Age}) + \beta_{7j}\,(\text{High Risk}) + \beta_{8j}\,(\text{Very High Risk}) + e_{ij}$$

where Y_{ij} is the adjusted Summer Bridge gain.

Level 2 (school level):

$$\beta_{0j} = \gamma_{00} + \gamma_{01}(\text{Evaluation of Bridge Curriculum}) + \gamma_{02}\,(\text{Individualization of Instruction}) + \gamma_{03}\,(\text{Teacher w/ Master's Degree}) + \gamma_{04}\,(\text{\% Students Teacher Knew}) + \gamma_{05}\,(\text{Separate Subject}) + \gamma_{06}\,(\text{Years Teaching}) + \gamma_{07}\,(\text{Science/Social Studies Teacher}) + \gamma_{08}\,(\text{Non-teacher}) + \gamma_{09}\,(\text{Taught Bridge Before}) + \gamma_{010}\,(\text{\% Excluded in Classroom}) + \gamma_{011}(\text{Passing Rates}) + \gamma_{012}\,(\text{Very Low-Achieving School}) + \gamma_{013}\,(\text{Low-Achieving School}) + \gamma_{014}\,(\text{Small Class}) + \gamma_{015}\,(\text{Large Class+})\ \gamma_{016}\,(\text{Predominantly African-American}) + \gamma_{017}\,(\text{Predominantly Latino}) + \gamma_{018}\,(\text{Mixed Race}) + \gamma_{019}\,(\text{Predominantly Minority}) + r_{00}$$

$$\beta_{1j} = \gamma_{10} \ldots\ldots \beta_{8j} = \gamma_{80}$$

APPENDIX E

Methodology for Developing Survey Measures

The Consortium uses Rasch analysis to develop measures from questions on its biannual surveys. Each measure surrounds a single concept such as personalism or academic press. The Rasch model is a member of the family of item response or latent trait models. (The model is based on measuring a single trait, following the concept that the trait can be examined using a unidimensional scale defined by an ordering of items.) Each survey item is assigned a position on the scale based on how frequently or how likely the question is endorsed. In addition, all persons responding to the survey items are assigned a position on the same scale based on their responses to those questions. This allows all respondents to the survey to be given a measure that indicates the extent to which they display the trait or attitude being examined. The person measures and the item difficulties are given in the logit metric (log odds units); but for reporting purposes, the logits are converted to a 0 to 10 scale.

Measure development begins with selecting questions from the surveys that seem conceptually coherent. Consortium analysts then use the Rasch model to analyze the survey items and those that fit statistically and are conceptually coherent are kept in the measure. The Consortium developed the measures on academic press and personalism using its 1994 student surveys. The items from these measures were repeated in subsequent surveys in 1997 and 1999, and corresponding measures were made. The item difficulties produced in the 1994 Rasch analysis were used to produce measures for the other years, making the measures directly comparable across years and useful for longitudinal analysis. Similarly, in developing the Summer Bridge measures of academic press and personalism, the 1994 item difficulties were used so that the spring 1999 and Summer Bridge 1999 measures could be compared. In this case, the Consortium was able to measure attitudes for each student during the school year as well as for during Summer Bridge.

APPENDIX F

Methodology for Estimating Student Reports on Summer Bridge

The statistical analysis reported in Chapter 3 is based on the two-level hierarchical linear model (HLM) used previously in the analysis of Summer Bridge test-score gains. We used the same model for each of the three outcome variables: the difference between students' reports on personalism between Summer Bridge and spring 1999, the difference in their reports of academic press, and students' evaluations of Summer Bridge. The analysis was run separately for sixth and eighth grades.

At Level 1, the dependent variables were dummies for being African-American, Latino, or male, an SES (socio-economic status) variable based on census information, age, and being at risk of retention based on prior achievement. High risk was defined as having a latent pre-test score a half year to one and a half years below the cutoff score and very high risk was having a latent pre-test score more than a year and a half below the cutoff score.

At Level 2, we used school- and grade-level predictors. Because we are unable to link students to their exact Summer Bridge teacher and classroom, we aggregated classroom information to the grade within the school. In many schools, the grade and classroom are the same, as the school had only one Summer Bridge classroom for that grade. The analysis used race and achievement levels of the school; programmatic characteristics, such as class size, having separate teachers for mathematics and reading, and the percentage of students that teachers knew prior to Summer Bridge; grade characteristics, such as passing and exclusion rates; and teacher characteristics, such as having a Master's degree or higher, having taught Summer Bridge before, years of teaching experience, and subject taught during the school year.

Level 1 (students):

$Y_{ij} = \beta_{0j} + \beta_{1j}$ (SES) $+ \beta_{2j}$ (African-American) $+ \beta_{3j}$ (Latino) $+ \beta_{4j}$(Male) $+ \beta_{5j}$ (Attending Home School) $+ \beta_{6j}$ (Age) $+ \beta_{7j}$ (High Risk) $+ \beta_{8j}$ (Very High Risk) $+ \varepsilon_{ij}$

Level 2 (school level):

$\beta_{0j} = \gamma_{00} + \gamma_{01}$ (Teacher w/ Master's Degree) $+ \gamma_{02}$ (% Students Teacher Knew) $+ \gamma_{03}$ (Separate Subject) $+ \gamma_{04}$ (Years Teaching) $+ \gamma_{05}$ (Science/Social Studies Teacher) $+ \gamma_{06}$ (Non-Teacher) $+ \gamma_{07}$ (Taught Bridge Before) $+ \gamma_{08}$ (% Excluded in Classroom) $+ \gamma_{09}$ (Passing Rates) $+ \gamma_{010}$ (Very Low-Achieving School) $+ \gamma_{011}$ (Low-Achieving School) $+ \gamma_{012}$ (Small Class) $+ \gamma_{013}$ (Large Class) $+ \gamma_{014}$ (Predominantly African-American) $+ \gamma_{015}$ (Predominantly Latino) $+ \gamma_{016}$ (Mixed Race) $+ \gamma_{017}$ (Predominantly Minority) $+ r_{00}$

$\beta_{1j} = \gamma_{10} \ldots \beta_{8j} = \gamma_{80}$

APPENDIX G

	Sixth Grade			Eighth Grade		
	Tested	Summer surveys	Matched sample	Tested	Summer surveys	Matched sample
Number of students	7,265	4,829	2,519	6,128	4,225	2,303
Number of schools	321	289	240	280	247	207
Student Characteristics						
African-American	64%	61%	53%	61%	57%	50%
Latino	31%	33%	41%	34%	37%	44%
Average Age	13	13	13	15	15	15
Recent bilingual program	5%	8%	8%	5%	7%	7%
Average Spring ITBS reading	4.8	4.8	4.8	6.8	6.8	6.9
Average Bridge ITBS reading	5.2	5.3	5.3	7.5	7.5	7.5
School Characteristics						
Predominantly African-American	56%	56%	52%	56%	54%	50%
Predominantly Latino	14%	13%	15%	13%	14%	16%
Predominantly minority	12%	12%	13%	13%	13%	15%
Mixed Ethnicity	8%	8%	9%	8%	8%	9%
At national norms reading (1999)	29%	30%	30%	29%	30%	31%

APPENDIX H

Statistical Analysis of Teacher Summer Bridge Measures

The statistical analysis reported in Chapter 4 uses a two-level hierarchical linear model (HLM) with teachers at Level 1 and schools at Level 2. We used the same model for each of the three outcome variables: teacher reports on the quality of the Summer Bridge curriculum, extent of individualized instruction, and reports of student motivation.

At Level 1, the independent variables were classroom characteristics such as dummies for having tutors, grade level, and class size; a variable for passing rates; and characteristics of the teacher, such as having a master's degree or higher, having taught Summer Bridge before, years teaching experience, and subject taught during the school year.

At Level 2, we used the following as predictors: school-level racial composition, SES, percent excluded, having separate teachers for reading and mathematics, and being a low- or very low-performing school.

Level 1 (teachers):

$Y_{ij} = \beta_{0j} + \beta_{1j}$ (Tutor) + β_{2j} (% Students Teachers Knew) + β_{3j} (Master's Degree +) + β_{4j} (Taught Bridge Before) + β_{5j} (Years Teaching) + β_{6j} (Science or Social Studies Teacher) + β_{7j} (Non-Core Subject Teacher) + β_{8j} (Grade 3) + β_{9j} (Grade 8) + β_{10j} (Average Gain Needed to Pass) + β_{11j} (Small Class) + β_{12j} (Large Class) + β_{13j} (Passing Rate) + ε_{ij}

Level 2 (school level):

$\beta_{0j} = \gamma_{00} + \gamma_{01}$ (Separate Subject) + γ_{02} (School SES) + γ_{03} (% Excluded) + γ_{04} (Very Low-Achieving) + γ_{05} (Low-Achieving) + γ_{06} (Predominantly African-American School) + γ_{07} (Predominantly Latino School) + γ_{08} (Mixed Race School) + γ_{09} (Predominantly Minority School) + r_{00}

$\beta_{1j} = \gamma_{10} \ldots \beta_{13j} = \gamma_{130}$

APPENDIX I

Methodology for Coding Classroom Observations

Classroom observations were coded to determine the extent to which teachers followed and used the daily lesson plans; provided instruction that was clear, accessible and accurate; engaged students and encouraged participation; and provided individualized and targeted instruction to meet their students' needs. Reading and mathematics lessons were coded separately for each observation, as the subjects were sometimes taught by different teachers, and we assumed that teachers might have more expertise in one subject than the other. Each classroom observation was coded independently by two raters for a total of three raters participating in the analysis. The majority of the time the independent raters agreed on observation codes. When there was disagreement between the two initial raters, a third rater was asked to code the observation independently. The final code in these situations was the code two of the three raters selected. A third rater was needed for 11 percent of mathematics lessons and 13 percent of reading lessons. In all cases where a third rater was needed, the rater agreed with one of the two initial codes.

In coding the observations, we initially grouped lessons into six categories, ranging from classrooms where virtually no instruction took place (insufficient instruction) to classrooms where teachers not only implemented the daily lesson correctly, but also provided instruction targeted to the needs of their students, taught concepts in multiple ways, and ensured that the vast majority of students understood the lesson (tailored instruction). After coding was completed, the six groups were reduced to four. Initially, we made distinctions between classrooms where teachers provided no instruction whatsoever and had highly chaotic classrooms, provided little to no instruction but maintained a whole class structure, and provided little to no instruction but had students work individually for most of the class. We found that these distinctions did not necessarily hold and that classrooms where teachers provided little or no instruction were homogenous enough to be grouped into a single category.

APPENDIX J

Methodology for Estimating Test-Score Gains for Summer Bridge Observation Schools

The statistical analysis reported in Chapter 5 is based on a two-level hierarchical linear model (HLM) of the adjusted Summer Bridge test-score gains used in Chapter 2. We used the same model for grades three, six, and eight for reading and mathematics. The analysis was run on the entire sample of Summer Bridge schools, and we used the empirical Bayes estimates of the school-level gains to evaluate the observation schools.

At Level 1, the dependent variables were dummies for being African-American, Latino, or male, an SES (socio-economic status) variable based on census information, age, and being at risk of retention based on prior achievement. High risk was defined as having a latent pre-test score a half year to one and a half years below the cutoff score and very high risk was having a latent pre-test score more than a year and a half below the cutoff score.

At Level 2, we used school- and grade-level predictors. Because we are unable to link students to their exact Summer Bridge teacher and classroom, we aggregated classroom information to the grade within the school. In many schools, the grade and classroom are the same, as the school had only one Summer Bridge classroom for that grade. The analysis used school race and achievement levels, and grade characteristics such as passing and exclusion rates. Unlike the model in Chapter 2, we do not have measures of programmatic characteristics such as class size and the percentage of students that teachers knew prior to Summer Bridge or teacher characteristics because the Summer Bridge survey was administered only in 1999, and the classroom observation was conducted in 2000.

Level 1 (students):

$$Y_{ij} = \beta_{0j} + \beta_{1j}\text{ (SES)} + \beta_{2j}\text{ (African-American)} + \beta_{3j}\text{ (Latino)} + \beta_{4j}\text{(Male)} + \beta_{5j}\text{ (Attending Home School)} + \beta_{6j}\text{ (Age)} + \beta_{7j}\text{ (High Risk)} + \beta_{8j}\text{ (Very High Risk)} + \varepsilon_{ij}$$

where Y_{ij} is the adjusted Summer Bridge gain.

Level 2 (school level):

$$\beta_{0j} = \gamma_{00} + \gamma_{01}\text{ (\% Excluded in Classroom)} + \gamma_{02}\text{(Very Low-Achieving School)} + \gamma_{03}\text{ (Low-Achieving School)} + \gamma_{04}\text{ (Passing Rates)} + \gamma_{05}\text{ (Predominantly African-American)} + \gamma_{06}\text{ (Predominantly Latino)} + \gamma_{07}\text{ (Mixed Race)} + \gamma_{08}\text{(Predominantly Minority)} + r_{00}$$

$$\beta_{1j} = \gamma_{10} \ldots \beta_{8j} = \gamma_{80}$$

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APPENDIX K

Four-Year Test-Score Trends for Summer Bridge High Scorers and Comparison Groups, Pre- and Post-Policy

	Pre-Policy Comparison (neither group attended Summer Bridge)				**Post-Policy Comparison** (students who did and did not attend Summer Bridge)			
	1993		1994		1997		1998	
	Just above cutoff	Just below cutoff	Just above cutoff	Just below cutoff	Just above cutoff, no Summer Bridge	Summer Bridge high scorers	Just above cutoff, no Summer Bridge	Summer Bridge high scorers
Third Grade Students								
2nd grade ITBS Reading Score (Logit Metric)	-2.25	-2.47	-1.96	-2.28	-2.18	-2.43	-1.91	-2.23
Gain 2nd to 3rd grade	.82	.79	.42	.32	.85	.85	.47	.36
Gain 2nd to 4th grade	1.05	1.06	.89	.96	1.22	1.31	.90	.96
Gain 2nd to 5th grade	1.53	1.55	1.35	1.38	1.78	1.85	1.41	1.47
Average post 3rd gain	.36	.38	.46	.51	.47	.53	.47	.55
Difference in average post 3rd gain as a % of average learning gain of comparison group	*7.2%*		*10.3%*		*13.4%*		*17.3%*	
Sixth Grade Students								
5th grade ITBS Reading Score (Logit Metric)	-.841	-.958	-.883	-.975	-.852	-.982	-.803	-.889
Gain 5th to 6th grade	.51	.42	.48	.41	.52	.43	.40	.27
Gain 5th to 7th grade	.99	.98	1.09	1.07	1.17	1.77	1.09	1.13
Gain 5th to 8th grade	1.49	1.48	1.66	1.64	1.85	1.88	1.65	1.69
Average post 6th gain	.49	.53	.59	.61	.66	.73	.63	.71
Difference in average post 6th gain as a % of average learning gain of comparison group	*8.3%*		*3.8%*		*9.6%*		*13.1%*	

ENDNOTES

Introduction and Report Overview

[1] Johnston (2000); Kasindorf and Howlett (2001); Mathews (2000).

[2] Gewertz (2000).

[3] Kasindorf and Howlett (2001).

[4] Denham and Lieberman (1980); Levin and Tsang (1987); Smith (1998).

[5] Alexander, Entwistle, and Olsen (2001); Cooper et al. (1996); Entwistle and Alexander (1992); Heyns (1978); and Heyns (1987).

[6] Cooper et al. (2000).

[7] Cooper et al. (2000).

[8] House (1998); Roderick et al. (1999).

[9] Monitors are external—meaning sent from the central office—rather than principals or fellow teachers.

[10] Roderick et al. (1999).

[11] Roderick et al. (2000).

Chapter 1

[1] CPS elementary schools usually include kindergarten through eighth grade.

[2] Students who are in special or bilingual education may attend Summer Bridge, but their teacher would make this decision. For students with disabilities, teachers follow the student's Individual Education Plan. The decision not to include students who were in bilingual or special education meant that many students were not included under the policy. In 1997, only 70 percent of third graders and 80 percent of sixth and eighth graders were included. Inclusion rates have decreased over time.

[3] For the Consortium's first report on ending social promotion, a statistical model was developed to estimate each student's risk of not meeting the cutoffs based on his or her entire test-score history. If a student's test score was abnormally low in the pre-promotional gate years (second, fifth, and seventh grades), this method would correct for that, as it predicts the student's test score based on his or her ITBS score in every prior grade, thus providing a more accurate prediction of a student's underlying ability.

[4] Easton et al. (1999).

[5] Roderick et al. (1999).

[6] Exceptions were granted for schools that were undergoing construction or schools with very few students required to attend.

[7] The official average CPS elementary school class size is 23 as reported on the CPS website. This figure, however, includes special education classrooms. The typical class

size is probably closer to the 29 to 31 number stated in the union contract.

[8] See Appendix A for the instructional foci of sixth-grade reading as well as mathematics for all three grades.

[9] See Appendix B for a brief description of the mathematics curriculum and for examples of daily mathematics lesson plans.

[10] Summer Bridge Teacher Handbook (1999), Reading, Grade 8.

Chapter 2

[1] The analysis presented in this chapter was developed by Melissa Roderick, Brian Jacob, and Anthony S. Bryk, and was originally presented in a paper that will be published in G.D. Borman and M. Boulay, Eds. (forthcoming).

[2] We excluded students who were retained and are participating in Summer Bridge for a second time because we wanted to examine the effect of Summer Bridge independent of the effect of retention. We included only those students who needed to pass cutoff scores on a particular test. Roderick, Jacob, and Bryk (forthcoming) found that test-score increases among sixth and eighth graders who did not need to pass the cutoff in that subject actually declined over the summer. This effect was larger in reading than in mathematics and did not occur among third graders. These declines in test scores for students who had already met the standard in that subject before attending the program suggest that students who did not need to pass the exam in order to be promoted may have exerted less effort on that exam. Because it is difficult to disentangle test motivation from learning among this group, we excluded them from the analysis of test-score gains.

[3] In 2000, the cutoff scores in sixth grade increased from 5.3 to 5.5 and in eighth grade from 7.4 to 7.7.

[4] Cooper et al. (2000).

[5] The standard deviation measures the spread of students' test-score gains around the mean, calculated by taking the square root of the squared differences between the test-score gains and the mean gain, divided by the number of students.

[6] Cohen (1969) describes an effect size of 0.2 as small, 0.5 as medium, and 0.8 as large. Still, interpreting the effectiveness of a particular intervention can only be meaningful in relation to other similar interventions. A "small" effect size of 0.2 may in fact produce a very noticeable difference.

[7] This is calculated by dividing the adjusted gain by the standard deviation of test scores in the subject in August. Cooper et al. (2000) uses an effect size calculation that is the average of the pre- and post-test standard deviation. Because our adjusted gain is estimated on the basis of a predicted test score that corrects for year-to-year fluctuations in student performance, the standard deviations of the predicted test scores are substantially below what would be expected from one test administration to the next. Therefore, to be conservative, we use the post-test standard deviation only.

[8] Smith (1998).

[9] Easton et al. (2000).

[10] Schools where over 85 percent of the student body is African-American were considered to be predominantly African-American for this analysis. Similarly, schools where over 85 percent of students are Latino were categorized as predominantly Latino.

Chapter 3

[1] Cooper et al. (2000), Finn and Achilles (1999).

[2] For example, in a 1999 Consortium report entitled, *Social Support, Academic Press, and Student Achievement: A View from the Middle Grades in Chicago*, Valerie Lee and her colleagues found that both the level of academic standards for performance (academic press) in classrooms and the extent to which students felt that teachers were personally attentive to their learning needs (personalism) were strongly related to student achievement. This is one of several studies that have emphasized the importance of combining a press for student achievement with personal support. See Bryk, Lee, and Holland (1993); Noddings (1988); Phillips (1997); Shouse (1996).

[3] The Summer Bridge measures for academic press and personalism use the same set of items as measures made from the 1999 student survey given to sixth- and eighth-grade CPS students in the spring. To make the Summer Bridge and school-year measures comparable, we anchored the Summer Bridge measures on the item and step difficulties from the school-year measures. Because the school-year measure had separate questions for math and reading, we used the mean of the step and item difficulties. Differences in item difficulties for the two subjects were minimal.

[4] Assessment of Summer Bridge is a Rasch measure that includes items from the Summer Bridge survey comparing Summer Bridge to the regular school year in terms of liking school, working harder, learning more, teachers having more time, students helping more, and reporting whether reading was too hard, math was too hard, summer school was boring, summer school was fun, if students were mad that they had to go to summer school, and if they hated summer school.

[5] Boys had a statistically significant difference in their assessment of Summer Bridge and in personalism but not in academic press. In their assessment of Summer Bridge, sixth-grade boys are 0.14 lower than girls and eighth-grade boys are 0.18 lower. For the personalism measure, sixth-grade boys are 0.25 lower and eighth-grade boys are 0.23 lower than girls.

[6] MacIver, Reuman, and Main (1995).

[7] Ames (1992); Harackiewicz, Abrahams, and Wageman (1987); MacIver, Stipek, and Daniels (1991); Stipek (1996).

Chapter 4

[1] Half of teachers in our 2000 summer interviews who reported a substantially smaller class compared to the school year also noted that the small class size allowed them to provide individualized attention to students. Approximately 27 percent noted that they were able to make more personal connections with their students and that reduced class size allowed them to better group students for instruction.

[2] Class size was measured by whether students were in a very small Summer Bridge class (12 or fewer students), an average class (13 to 17 students), or a large class (18 or more students). The achievement level of the class or grade was measured by how far behind the reading test-score cutoff the average student was on entry into Summer Bridge. Our analysis also took into account additional teacher and school characteristics including teachers' years of experience, whether the teacher had taught Summer Bridge before, whether the teacher had a master's degree or higher, was a science or social studies versus a regular elementary school teacher, or was not a classroom teacher. Other school-level characteristics included the average socio-economic status of the school and the percentage of students in the promotional gate grade excluded from the testing policy.

Chapter 5

[1] We conducted this analysis for reading only. In 2000, the sixth- and eighth-grade mathematics curriculum was revised to include more than one lesson per day, and it became difficult to determine what lesson teachers were supposed to be on.

[2] This scheme was used in BetsAnn Smith's 1998 Consortium report, *It's About Time*.

[3] Instructional set-up time would include activities like providing an example while preparing students for an exercise; non-instructional set-up time includes handing out materials, having students take out books.

[4] This analysis used a two-level hierarchical linear model. At the student level it controlled for socioeconomic status, age, race, gender, whether students attended their home school for Summer Bridge, and the latent prior year ITBS score. At the school level the model controlled for school achievement, passing rate, and racial composition (see Appendix J for details and model).

Chapter 6

[1] Cooper et al. (2000).

[2] This chapter draws on the work of Brian Jacob and Lars Lefgren looking at the sustainability of Summer Bridge (2002). We are indebted to their intellectual contribution to this work.

[3] The band was determined using the distribution of test scores and possible grade equivalent scores for each exam.

[4] We excluded 664 third graders and 530 sixth graders in 1997, and 923 third graders and 510 sixth graders from our Summer Bridge high scorer group because they were retained the following school year.

[5] There are several well-known shortcomings of using GE scores for studying growth over time. Different forms of the exam are administered each year. Because the forms are not correctly equated, one might confound changes in test performance with changes in form difficulty. The GE is also not useful for assessing student growth across grades because scores are not directly comparable across test levels. Since the GE is not a linear metric, a score of 5.3 on level 12 (grade 6) of the exam does not represent the same thing as a score of 5.3 at level 14 (grade 8). Finally, the GE metric is not linear within test levels because the scale spreads out more at the extremes of the score distribution. One additional correct response at the top or bottom of the scale can translate into nearly a gain of one full GE, whereas an additional correct answer in the middle of the scale would result in only a fraction of this increase. Thus, if Summer Bridge students, who are low performing, move to the middle of the scale, it would appear that their learning gains decrease over time.

[6] Bryk et al. (1998).

[7] In previous reports, we used the 1995 cohort as a comparison group when looking at one-year post-gate trends. However, because we are looking at four-year trends in student performance, sixth graders in the 1995 cohort were included in the policy for two years (seventh and eighth grades). Roderick, Jacob, and Bryk's (forthcoming) analysis of pre-policy effects found greater than average gains in both the gate (sixth and eighth grades) and pre-gate (fifth and seventh grades) years. In order to avoid confounding effects caused by the implementation of the policy with general trends in learning, we did not use the 1995 cohort as a comparison. Sixth graders in 1994 did, however, face the policy in eighth grade in 1996, the first year of implementation.

[8] Based on 1998 learning gains for sixth graders.

Interpretive Summary

[1] Roderick, Jacob, and Bryk (forthcoming).

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COMMENTARIES

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Over its recent history, the Chicago Public Schools (CPS) has often served as a national exemplar of educational experimentation and innovation. Beginning with the grass-roots decentralization reform of 1988, then the major reorganization of the central office in 1995, and, most recently, the introduction of high-stakes accountability along with the Summer Bridge program, elementary and secondary education in Chicago has attracted considerable national attention. Since 1990, the Consortium on Chicago School Research has been a vital component of these reform efforts. Working collaboratively with the school system, the Consortium has brought high-quality evidence to bear on matters of educational policy and practice and has helped fuel reform by stimulating a democratic discourse about "what works" in reforming Chicago public schools. This model of educational experimentation informed by balanced and high-quality research is, once again, demonstrated in the report *Ending Social Promotion: Results from Summer Bridge.*

The phenomenon is one that has swept the country: school systems are putting an end to social promotion and initiating new summer school programs that are designed to give failing students a second chance for promotion to the next grade.[1] The general idea seems very sensible—providing additional time to help all students master the same content is an intuitive solution that is grounded in research.[2] The summer session, when students typically are out of school, seems to be an obvious time to offer this extra help. Summer school also makes sense, based on evidence dating back to 1906 showing that students, on average, lose a little more than a month's worth of skill or knowledge over the summer break.[3]

Research on the summer achievement slide has also established that the break has an especially deleterious impact on poor children's reading achievement. While middle-class children's test scores essentially plateau during the summer months, poor children's scores show marked declines. As a result of this summer learning difference, the reading skills of poor students fall farther behind the skill levels of their middle-class peers. This difference may represent as much as one-third of the typical amount of learning that takes place during the regular nine-month school year.[4] Perhaps even more disconcerting, a long-term study led by Karl Alexander and Doris Entwisle established that these income-based summer learning differences *accumulate* over the elementary school years, such that poor children's achievement scores fall farther and farther behind the scores of their more advantaged peers as they progress through school.[5]

Because this research also shows that children of all income levels tend to gain at similar rates during the nine-month school year, the widening of the test-score gap between disadvantaged and advantaged children is almost entirely explained by summer learning differences. As a result of this research and the research of a few others such as Barbara Heyns, it has become a fairly well-established fact that what happens during the summer has tremendous implications for understanding and addressing the persistent achievement gaps that separate poor and minority children from middle-class majority children in the United States.[6] These findings have tremendous implications for CPS in that 86 percent of its students come from low-income households, and the majority are from racial/ethnic minority backgrounds.

Summer school, therefore, seems like a good idea for a variety of reasons, but how has research weighed in on the issue? The most complete and recent source of information is the comprehensive quantitative review, or meta-analysis, by Cooper, Charlton, Valentine, and Muhlenbruck.[7] These authors concluded that the average student enrolled in remedial summer programs, like Chicago's Summer Bridge, would outperform about 56 to 60 percent of similar students not enrolled in a summer program. Though there were considerable differences across the programs they reviewed, this outcome suggests that summer school may be generally regarded as an effective educational intervention. Such effects prevent the summer slide, help students catch up to their peers, and help close the achievement gap.

Across years, subjects, and grades, the Summer Bridge adjusted test-score gains (see Figures 2-4a and 2-4b on page 35) suggest that the students participating in the program outperformed between 56 and 73 percent of similar non-participating students, with the clear majority of these gains falling above the high-end 60 percent mark noted by Cooper and colleagues. Therefore, if summer school programs are, in general, effective interventions, and Summer Bridge effects, in general, exceed those typically found in other remedial programs, what does this suggest? Does this finding make sense? I believe that the answer is "yes" for the following reasons.

In this report, Melissa Roderick, Mimi Engel, Jenny Nagaoka, and their colleagues use state-of-the-art quantitative methods to measure the effects of Summer Bridge. They have also collected other key data to help describe the characteristics of the program, understand what it looks like in action, and gain the perspectives of participating students and teachers. The authors' analyses address and correct for statistical artifacts, such as regression to the mean, that may provide inflated estimates of Summer Bridge effects. They also establish that the program's effects did not deteriorate in the ensuing years following students' participation. They do virtually everything possible to produce unbiased appraisals of the efficacy of the program and provide convincing evidence that its effects are real and impressive.

Nevertheless, a research purist still may say that without a true randomized experiment, we will never know how Summer Bridge students would have performed without the benefit of the program. Yes, an experiment like the Tennessee class-size reduction study may provide even more convincing evidence of the program's efficacy.[8] This would involve randomly denying summer school services to some students, who would serve as a control group, while randomly assigning other students to enroll in the program. There may be other alternatives, such as assigning either Sum-

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mer Bridge or an alternative school year intervention at random. The achievement gains of those assigned to receive Summer Bridge could then be compared to the summer gains made by students assigned to receive extra help during the ensuing school year. In this way, no students would be denied services. The potential legal and ethical issues involved with such fundamental changes in policy are ones that only CPS, and not the Consortium, could address.

A cynic also may say that, despite the impressive gains, only about half of Summer Bridge students meet the promotional test-score cutoffs. Practically speaking, though, students of different social backgrounds and of varying achievement levels all benefit from the program and, in general, these benefits are substantial. Students far from the cutoff score, though, have much farther to go and, as a result, many do not meet the promotional criterion. Although this is not necessarily the fault of the program, it suggests that the policies for these students may require some rethinking. It may not be reasonable to expect these students to meet the cutoff score under current conditions. Should an alternate program model be available for those students particularly at risk, might more individualized instruction, and possibly one-on-one tutoring, help them meet the standards? Alternatively, as the greater flexibility in the 2000 promotional policy suggests, do the criteria for promotion need to be reconsidered?

The Summer Bridge program has enjoyed success because it contains many of the elements that research by Cooper et al. and others, suggest distinguish effective summer programs:

- small class sizes;
- individualized attention to students' learning needs;
- a careful and highly specific design that improves the fidelity of the model's implementation;
- high attendance rates;
- substantial academic components aimed at teaching reading and math; and
- integrating summer school experiences with those that occur during the regular school year, including interactions during Summer Bridge between teachers and students who were in classrooms together during the regular school year.[9]

At the same time, Summer Bridge seems to avoid the pitfalls, noted by Ascher and Austin, Roger, and Walbesser of failed and less effective summer programs:

- short program duration;
- loose organization and little time for advanced planning;
- low academic expectations;
- discontinuity between the summer curriculum and the regular school year curriculum;
- teacher fatigue; and
- a limited academic focus.[10]

It is my hope that we can continue to learn from the Consortium's research on a program that is, in many ways, a model worthy of replication across the country. With the Consortium's future research and with the school system's ongoing efforts to end social promotion, Chicago will continue to provide a national exemplar of what high-quality mandatory summer school programs can achieve.

Endnotes

[1] G.D. Borman, "Summers are for learning," *Principal* 80, no. 3 (2001): 26-29.

[2] National Education Commission on Time and Learning, *Prisoners of Time*, (Washington, DC: Author, 1994).

[3] H. Cooper, B. Nye, K. Charlton, J. Lindsay, and S. Greathouse, "The Effects of Summer Vacation on Achievement Test Scores: A Narrative and Meta-Analytic Review," *Review of Educational Research* 27 (1996): 227-268.

[4] Ibid.

[5] K.L. Alexander and D.R. Entwisle, "Schools and Children at Risk," in *Family-School Links: How Do They Effect Educational Outcomes?* eds. A. Booth and J.F. Dunn (Mahway, NJ: Lawrence Erlbaum Associates: 1996).

[6] B. Heyns, *Summer Learning and the Effects of Schooling* (New York: Academic Press, 1978).

[7] H. Cooper, K. Charlton, J.C. Valentine, and L. Muhlenbruck,

"Making the Most of Summer School: A Meta-Analytic and Narrative Review," *Monographs of the Society for Research in Child Development* 65, no. 260 (Malden, MA: Blackwell, 2000).

[8] J.D. Finn and C.M. Achilles, "Answers and Questions about Class Size: A Statewide Experiment," *American Educational Research Journal* 27 (1990): 557-577.

[9] Cooper et al. (2000).

[10] C. Ascher, "Summer School, Extended School Year, and Year-Round Schooling for Disadvantaged Students," *ERIC Clearinghouse on Urban Education Digest* 42 (1988): 1-2; and G.R. Austin, B.G. Roger, and H.H. Walbesser, "The Effectiveness of Summer Compensatory Education: A Review of the Research," *Review of Educational Research* 42 (1972): 171-181.

Geoffrey D. Borman, Ph.D. (University of Chicago) is a professor in the School of Education at the University of Wisconsin-Madison. Fueled by the application of quantitative methods to educational research, his main substantive interests are anchored in inquiry focused on the social organization of schools, review of research, and the evaluation and development of policies and programs for improving the educational outcomes of historically underserved children. His recent projects include a randomized experiment involving an innovative summer school program in Baltimore, Maryland; a long-term cost-effectiveness study of the original Success for All schools and students; an exhaustive meta-analysis of the literature on externally developed comprehensive school reform programs; and a forthcoming edited volume on summer learning and summer schools, *Summer Learning: Research, Policies, and Programs.*

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The Chicago Public Schools' Summer Bridge program represents an effort to bring an end to social promotion through the use of summer school to improve student performance on standardized measures of reading and mathematics achievement. When it began, it received considerable public attention. As such, efforts to determine whether its impact deserved both the time and money provided for it are also likely to generate considerable public attention.

Previous Evaluations of Summer School

In our review of the research on the effects of summer school, we found that it serves multiple purposes for students, families, and communities.[1] For example, parents and communities hope that, in addition to academic instruction, summer school will provide positive environments for students and thereby diminish juvenile crime. The current need for summer programs is driven by changes in American families as well as by calls for an educational system that embodies higher academic standards.

We examined and integrated the results of 93 evaluations of summer school. The synthesis revealed that summer programs have a clear positive impact on the knowledge and skills of participants. The average student who went to summer school jumped over about 5 to 10 percent of similar students who did not attend, as measured by achievement test scores. Although all students benefited from summer school, students from middle-class homes showed larger positive effects than students from disadvantaged homes. We suspect this is because disadvantaged children often have multiple impediments to learning. Even with these impediments, however, summer school proved effective for children from poor families.

Students at all grade levels benefited from remedial summer school but students in the earliest grades and in high school appeared to benefit most. Consistent with our summer learning loss findings, remedial programs may have more positive effects on mathematics than on reading, though again, the effect on reading is clearly positive as well.[2]

Based on these and other results, we recommended that summer programs be provided with a stable source of funds and that funds be set aside to foster participation, especially among disadvantaged youth. The benefits of summer school for achievement are clear, and its positive effects may extend beyond the schoolyard gates.

Research Design and Strength of Inferences

Summer school evaluations vary greatly in terms of their quality. Quality is often described as the extent to which processes and variables other than the program itself can be ruled out as alternate explanations for an observed effect. As a whole, the evaluation of the Summer Bridge program is one of the strongest single research pieces available on the effects of summer school on student achievement.

The major impediment to strong inferences from this particular evaluation arises from its research design, or more specifically, how the evaluators constructed the groups of students attending and not attending summer school. The research designs employed were not the most desirable because students were not randomly assigned to the two summer school conditions. Rather, summer school attendees were selected based on school district policy. Thus, the evaluators were left to their own devices to construct comparison groups of non-attendees who were as similar as possible to the attendees. This left the evaluators with less-than-optimal choices regarding how to constitute a comparison group. The chosen designs—including pre- and post-comparisons for participating students, cohort analyses, and regression discontinuity designs—represent the best available alternatives.

The researchers also employed sophisticated statistical designs and collected a rich database for answering questions. Data were collected using multiple methods including standardized achievement tests, surveys, interviews, and classroom observation. The resulting evaluation is well written and non-technical, with good use of footnotes, tables, and sidebars to explain and display necessary technical information.

Positive Characteristics of the Summer Bridge Program

In our review of summer school research, we also made numerous recommendations for summer school implementers, which were meant to ensure that programs were delivered in the most effective manner possible. Several of the defining characteristics of the Summer Bridge program are consistent with what we found most closely associated with effective summer school programs in general. These include small class sizes, the alignment of the curriculum and the measures used to assess program effectiveness, strong pre-program planning, and monitoring of program implementation.

Having these features in the Summer Bridge program design is especially important because past research on the effectiveness of summer school also suggested that large summer programs in a school district serving primarily disadvantaged children would be the least likely to succeed. The inclusion of these features in the Chicago program likely provides a partial explanation for its success.

This should not be taken to mean that the results of the Chicago evaluation are free from the influence of factors external to the program itself, however. For example, one critical feature of the Summer Bridge program is the alignment between the curriculum and the measures used to assess program effectiveness. With respect to high-stakes testing, one concern is that teachers will "teach the test." That is, students will learn how to perform better on the relevant standardized test without learning skills that translate into better performance in other contexts. Perhaps positively, one finding from observations of classrooms revealed that teachers spent little time coaching students on how to take the test. This finding might have been due to the highly scripted nature of the curriculum or it might have been a function of when the classroom observations were made. Coaching might have occurred during the final week of class, just prior to testing but after observations were completed (although the finding that teachers adhered very closely to the scripted curriculum lends hope that little coaching occurred even in the final few days of school).

Also, based on student and teacher survey data, the Summer Bridge program might influence student motivation when taking the high-stakes test. That is, it seems likely that some students may not exert full effort on the spring administration of the test, which may result in a test score that is lower than their ability would otherwise indicate. Thus, at least part of the apparent impact of the program might not be due to instruction per se, but rather to an increase in student motivation. If true, this suggests the possibility that interventions aimed at improving student test motivation during the regular school year may be worth examining as a cost-effective way of decreasing the number of students attending summer school.

Conclusion

In general, we found this evaluation to be conducted well, especially in light of the constraints faced by the evaluators. With a less-than-optimal research design, the evaluators took great care to be thorough and to insure that arguments that both favored and opposed the summer program found voice.

Endnotes

[1] H. Cooper, K. Charlton, J.C. Valentine, and L. Muhlenbruck, "Making the most of summer school: A meta-analytic and narrative review," *Monographs of the Society for Research in Child Development* 65, no. 260 (Malden, MA: Blackwell, 2000).

[2] H. Cooper, B. Nye, K. Charlton, J. Lindsay, and S. Greathouse, "The effects of summer vacation on achievement test scores: A narrative and meta-analytic review," *Review of Educational Research* 27 (1996): 227-268.

Jeffrey C. Valentine, Ph.D. (University of Missouri-Columbia). Dr. Valentine's research interests follow two paths. His first concern can be broadly described as educational social psychology. He is interested in the interrelations between social psychological processes (such as the cognitive and affective components of achievement and academic motivation), academic achievement, and educational policy. The second path involves research synthesis. Dr. Valentine has published work on research synthesis methods in *Advances in Achievement and Motivation: New Directions in Measures and Methods* and *Contemporary Special Education Research*, along with several other primary research papers using research synthesis, such as *Monographs of the Society for Research in Child Development*, *American Journal of Community Psychology*, and *Annals of Behavioral Medicine*.

Harris M. Cooper Ph.D. (University of Connecticut) is a Professor in the Department of Psychological Sciences at the University of Missouri. He has extensive experience in research synthesis and the application of social psychology to educational policy. In 2000, his monograph *Making the Most of Summer School* was published by the Society for Research on Child Development. Dr. Cooper's research has had an impact on educational policies and practices nationwide. He travels widely to speak with parents, teachers, and administrators about homework, summer school, and modified school calendars. He has written for several practitioner publications, including *Educational Leadership* and *The American Teacher*. He is author of a best-selling guide on homework policy and practice, *The Battle over Homework: Common Ground for Administrators, Teachers, and Parents* (2001).

John Portz

Northeastern University

This evaluation of Chicago's Summer Bridge program is an important contribution to our understanding of summer school initiatives. It combines a sophisticated analysis of the program with a clear discussion of key policy issues. The authors provided valuable insights and lessons for educators and policymakers in Boston and other cities as they develop their own summer programs to raise academic achievement and end social promotion.

In commenting on this evaluation, the Boston summer school experience provides a number of interesting points for comparison. Along with colleagues from Northeastern University and Harvard University, I am engaged in an evaluation of the Transition Services program of the Boston Public Schools. This program provides additional literacy and math instruction for academically at-risk students in grades three, six, and nine, as well as instruction during the summers before and after those grades. In the summer of 2000, Boston's Transition summer school program included approximately 7,300 students in grades two and three and five through nine for 80 hours of instruction (five weeks of instruction, four hours per day, four days per week). In the summer of 2001, enrollment increased to 8,260 students in the same grades for the same duration.

Although similar in their goals, the Chicago and Boston programs have several important differences that highlight key issues relevant to summer programs. One is the policy for excluding particular student population groups. Chicago, for example, excludes students with special needs and certain bilingual students, whereas Boston includes these populations. In summer 2001, students in special and bilingual education represented 42 percent of those required to attend Boston's summer program. Not surprisingly, this policy has important implications—teachers in the Boston program, most of whom lacked special training in these areas, often commented on the difficult challenges of teaching special needs and bilingual students.

Another key issue on which Boston and Chicago differ is the nature of the summer curriculum. Chicago operates with a relatively prescribed curriculum structured around the Iowa Tests of Basic Skills, while the curriculum in Boston is more flexible. In fact, a major critique by teachers in Boston's summer 2000 program was the lack of curriculum guidance and materials. In summer 2001, this was addressed with a more specific set of learning objectives in mathematics and English language arts, as well as a set of curriculum materials for each subject.

It is interesting to note, however, that teachers in both systems had somewhat similar concerns regarding curriculum, even though the degree of prescription varied. For example, one common critique made by teachers in Chicago was the frequent mismatch between curriculum materials and the learning needs of students with particularly low skills. This same critique was made by a significant number of teachers in Boston. Also, teachers in both cities raised a concern over the rapid pace recommended by the central office to cover the curriculum. A lesson to be drawn from these comments is the importance of providing a curriculum that is flexible enough to meet the diverse learning needs of a summer school population. Finding a balance between centralized curriculum guidance and flexible adaptation is an important challenge that tests the skills of curriculum planners and teachers.

Academic achievement is the primary goal of Summer Bridge and similar programs. The analysis in this report includes a very useful and methodologically interesting discussion of test-score gains. The use of a growth model to chart a trajectory of student test scores, the "adjusted Summer Bridge gain," allows the authors to give a more realistic appraisal of gains. In addition, sorting students by their distance from the passing score provides a more nuanced look at the challenge faced by the Chicago program. The sorting by "level of risk" highlights the significant number of students who are considerably below grade level. For these students, distinguishing between achievement scores and promotion as outcome measures, as the researchers do in their analysis, is important. Although they may not reach the promotional cutoff, their achievement gains as measured by test scores are important. It is this group of students that teachers are particularly concerned about in their critique that the curriculum does not meet the needs of low-skill students.

A common challenge for summer programs for academically at-risk students is low student attendance. On this measure, Chicago's Summer Bridge appears to have been quite successful; researchers report attendance levels in the 90 percent range. By way of contrast, in Boston's summer programs in 2000 and 2001, attendance among those students required to attend summer school was 66 percent and 67 percent, respectively. Attendance was particularly problematic in the upper grades. In grade nine, for example, only 50 percent of students told to attend summer school did so. Based on my research in several other Massachusetts cities, Boston's experience in this area is fairly typical. Chicago's success prompts further interest in policies and practices that might help to explain this relatively high level of attendance.

The classroom setting and teacher practices received extensive attention in this report. In these areas, the authors make an important contribution to our understanding of successful summer programs. The support for small class size among teachers in Chicago is not unexpected, but it bears repeating as an important ingredient of a summer program. In Boston as well, where class size averages were 10 and 14 in the two years of the program, surveys of teachers found that small class size was the program's most frequently cited strength.

Connecting teacher survey responses to student achievement is an important exercise in identifying the role of teacher practice. Unfortunately, teacher anonymity in the survey responses complicated this analysis, requiring the Summer Bridge research team to average responses within a grade if there were multiple classes in that grade. While recognizing this limitation, this study reveals a positive association between adapting curriculum to student needs and student academic achievement. Again, this raises the importance of preserving some flexibility in the curriculum to allow teachers to tailor instruction to students' learning needs.

This analysis also shows a positive association between teachers' prior knowledge of students and student academic achievement. This is interesting in light of the debate between those advocating summer instruction by teachers who already know the needs of individual students and those advocating new teachers who do not bring preconceived biases and prejudices to their relationships with students. On this question, the Boston experience generally supports findings for Summer Bridge. In surveys and interviews, Boston teachers were much more likely to take the position that previous experience with a student was beneficial to the learning process.

The researchers' use of classroom observations also provides an interesting perspective on student achievement. The rating scale used for classroom observations and the different categories assigned to instruction—"tailored" to "insufficient"—are useful strategies for capturing the basic nature of classroom practices. Differences observed in instructional practices revealed important variation in the classroom experience, even when there was a prescribed curriculum. Furthermore, this variation is important, as revealed in its correlation with adjusted learning gains. Consistent with the comment in the previous paragraph, the highest learning gains were associated with "tailored instruction" that included greater adaptation of the curriculum to students' learning needs.

In Chapter 6, the authors turn to the central question of whether Summer Bridge learning gains are sustained over time by developing a quite impressive comparison group strategy that focused on the differences in gains among students above and below the promotional cutoff compared to the achievement differences of comparable groups prior to Summer Bridge. Although the authors find some sustainability over two years, it is modest and limited, particularly for students with the lowest skill levels. The general conclusion that Summer Bridge provided primarily a "one-time boost" for low-achieving students is significant and points to the importance of a long-term strategy to raise academic achievement. Boston's Transition program reflects this thinking in its design as a 15-month strategy—two summers and the academic year in-between—to raise student achievement. It may be that an even longer time frame is needed to make a significant impact on student learning.

In addition, the Interpretive Summary is a very useful compilation and integration of evaluation findings and policy implications. This chapter highlights key questions and issues that face administrators and policymakers as they design summer programs: staff development, curriculum design, etc. In doing so, a final dimension is added to the evaluation that takes it clearly beyond Chicago and provides a useful guide for others as they grapple with questions of summer school policy and program development to address the needs of low-achieving students.

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I offer comments from three perspectives: (1) fair and effective accountability systems, (2) adequacy in school finance, and (3) districts and schools acting jointly as a "learning organization" involved in continuous educational improvement.

The Policy, Summer Bridge, the Report, and Standards for Accountability Systems

A recent CRESST/CPRE policy report distills and summarizes standards for fair and effective accountability systems (the "Standards"). Interestingly, both the Summer Bridge program and *Ending Summer Bridge: Results from Summer Bridge* significantly advance the extent to which the underlying accountability policy (grade promotion based on the Iowa Tests of Basic Skills, or ITBS) meets the Standards.[1] In other words, both the program—Summer Bridge—and the report evaluating the program deserve to be considered as important parts of the accountability system of the Chicago Public Schools (CPS), the same sort of conclusion reached here about adequacy and continuous educational improvement.

Although inclusion of reports as part of accountability systems might seem strange, it is unavoidable in light of the penultimate Standard on Evaluation (number 21), which recommends that "longitudinal studies should be planned, implemented, and reported evaluating effects of the accountability program" and comments, "The primary purpose of educational accountability systems is to improve instruction and student learning." The Consortium report, a longitudinal evaluation of effects on learning, shows that Summer Bridge produced substantial gains in student learning in a relatively short period of time (gains of two to six months as measured in grade equivalents, depending on grade and subject matter, in 90 to 140 hours of instruction—up to three times the learning rate of the same students in the regular school year). The validity of Summer Bridge gains is supported by the findings in Chapter 6 on sustainability—on average, students maintained summer gains in subsequent school years (validation from the same test under different educational circumstances rather than from a different measure of achievement, as the Standards recommend). In documenting these gains, the authors satisfy Standard 6, which endorses longitudinal analysis as a means of avoiding erroneous inferences about the progress of students and schools.

Standard 10 recommends that "if tests are to help improve system performance," which the Standards declare the primary purpose of accountability systems, "there should be information provided to document that test results are modifiable by quality instruction and student effort." Data provided by the report on this point also help meet Standard 2 recommending "different types of data from multiple sources," including "the degree to which students are provided with adequate opportunity to learn the content specified in content standards and curriculum materials." Several important findings presented in the report deal with the effect of instruction—that student attendance and satisfaction exceeded the regular school year and that student learning is substantially improved by good teaching and high-quality schools.

Regarding instruction, careful classroom observations were coded into four categories of the quality of instruction: tailored (20 percent of classes), sufficient (40 to 50 percent), minimal (10 percent), and insufficient (23 percent). Students in the insufficient classes gained over two months, on average, less than students in tailored classes. (The report convincingly explains, why, given problems with the data, these differences are almost certainly understated). Although good teachers may be born and not made, the characteristics of the best and worst instruction do not appear mysterious. For example, in tailored instruction, "the teachers followed the daily lesson, provided clear and accurate instruction about the instructional focus and had meaningful and constructive interactions with their students," while with insufficient instruction "the lesson was virtually not implemented" in the sense that "little or no time was devoted to instruction, there were...extensive periods of down time, and teachers provided little structure and inadequate classroom management." Nevertheless, students' high average gains probably were due to the close alignment of the instructional materials with the test and the high degree of teacher compliance with the pace of the daily lesson plans (90 percent) despite their reservations about how well the curriculum met the needs of individual students. Extra help for students and assignments outside of class also paid off in higher test scores.

Standard 15 on stakes in accountability systems provides that "stakes for accountability systems should apply to adults and students and should be coordinated to support system goals" (the comment adds that asymmetry or conflict in stakes, consequences for either adults or students but not both, can have undesirable consequences). The CPS accountability system does have consequences for failing schools. At the same time, Summer Bridge itself also seems to be a way that the system, its teachers, and its schools take responsibility for students at risk of failure. In terms of protecting those most at risk, the report has a dual message, with data relevant to Standard 20, which requires public reporting of the performance of sub-groups. On the one hand, an outstanding accomplishment of Summer Bridge was that students of all sub-groups made substantial gains. On the other, although 86 percent of the moderate- and low-risk students (students less than 1.5 grade equivalents behind at the end of the regular school year) were promoted at the end of the summer, relatively few—10 to 33 percent—high-risk students (students more than 1.5 grade equivalents behind) were promoted. In other words, high-risk students received some benefit but not enough to be promoted. In this sense, Summer Bridge was not structured to take sufficient responsibility and the system remained asymmetrical.

This asymmetry was technically cured in the year 2000 by the adoption, in response to civil rights complaints, of multiple measures for promotional decisions at the end of the summer (including teacher and principal recommendations, grades, attendance in summer school, and a range of scores on the ITBS). Multiple measures also brought the system into compliance with Standard 7, which states bluntly, "Decisions about individual students should not be made on the basis of a single test." The result was that, in 2000 in third grade, 77 percent of students were promoted, only half of whom made the ITBS cutoff. The report makes this comment at the end of Chapter 2:

> Finally, this chapter highlights the central tension of creating effective policies under high-stakes testing. On the one hand, findings in this chapter suggest that using single test-score cutoffs for promotional decisions may set up for failure those students with the lowest skills. Despite test-score gains in Summer Bridge that were larger than average for these students, very few high-risk students were able to raise their test scores to the promotional cutoffs. The expansion of the promotional criteria means that students with the lowest skills had a significantly higher likelihood of being promoted to the next grade in 2000, which could be interpreted as a means of rewarding work effort and an acknowledgement of learning gains despite not having met the cutoffs. On the other hand, one could argue that the system is no longer working toward ending social promotion and that many students are now being promoted without adequate skills.

Confirming the presence of a genuine tension, the system's broadening of the promotional standards also introduced a different kind of asymmetry by lowering the incentives for student work, a risk made more plausible by a different study cited in the same chapter showing that test scores of certain sixth- and eighth-grade students who did not need to pass the test actually declined over the summer. A logical question is whether providing more of the most effective resources to the students most at risk could have raised their promotion rate to an acceptable level, preserving the incentives for student work, while avoiding setting up high-risk students for failure. That idea is a good transition to the next topic—adequacy in educational finance.

Summer Bridge and Adequacy in School Finance

The authors explicitly offer the explanation that additional resources were responsible for gains in student learning: extra instruction over and above the school year, smaller class sizes than the school year (16 compared with 29-31), a curriculum carefully aligned with the test, and fully subsidized curriculum materials and lesson plans. These substantial resources targeted on students at risk plausibly provided the significant opportunity to learn that was responsible for test-score gains. The strong incentives produced another resource—high student effort. Research cited by the authors shows that students learn more with personal support (personalism) and strong expectations for students to work hard (academic press). In the report, we learn that over 80 percent of sixth and eighth graders reported that they worked harder in summer school than the regular year. Over 85 percent reported that teachers had more time to help them in Summer Bridge than during the regular school year—a magnifier of incremental instruction.

Differential resources within Summer Bridge also had an impact. In addition to the quality of instruction discussed above, other resources that had an impact on test-score gains were school quality, teachers knowing their students prior to the program, and a class size of 12 or fewer students. Regarding school quality, even after accounting for the fact that low-achieving schools tended to serve lower-achieving students, adjusted learning gains varied significantly across schools. Students who attended high-performing schools (those with higher school year ITBS scores) had larger gains. Adjusted learning gains in reading were significantly greater in all grades in schools where teachers reported knowing a larger proportion of their students before Summer Bridge. This large effect occurred even after controlling for the demographic and achievement characteristics of students and schools. Regarding class size, the report showed that having a class size of 12 or fewer, and knowing the teacher, made a substantial difference in measures of both academic press and personalism.

Such findings make Summer Bridge a close fit with work I have done on adequacy in school finance.[3] In that work, I suggest that educational resources are adequate to the extent that they allow low-achieving students to reach proficiency on standards applicable to all students in a state. Resources should be targeted in two senses: on low-achieving students and on interventions with the demonstrated capacity to achieve the goal. In one sense, there would be no upper limit to the resources: proficiency costs what it costs. But there also would be no lower limit in the sense that low-cost programs achieving the goal could (and probably would) be preferred. Because the entitlement to extra resources is contingent on their effectiveness, adequacy necessarily has an experimental aspect. Judicial, legislative, and educational remedies would be implemented, evaluated, and adjusted according to data on impact.

Based on the authors' findings, Summer Bridge represents a solid but partial success story of educational adequacy. Substantial, extra, and targeted resources were provided to low-achieving students. Many did meet the promotional cutoff, a working definition of adequacy. The program's success was partial for the same reason it suffered against standards of accountability: less than half the students at greatest risk made the cutoff and the program was compromised in a way that may have affected its incentive power. Rather than watering down the cutoff, the district might have explored more and different kinds of targeting on the students most at risk: allocating them to the best schools and teachers, allocating them to good teachers who knew them from the school year, improving professional development, and financing the most effective kinds of instruction (for example, extra individual attention), and so forth. Based on the substantial gains already demonstrated, full adequacy seemed well within reach, and the civil rights complaint might have been better directed at extra resources than lower standards (though, unfortunately, less supported legally in the state of Illinois).

Of course, to say "lower standards" implies that we know the answer to the question posed by the report—whether the new, multiple measures for promotion are a more valid indicator of adequate skills (as the Standards assume) or merely a convenient way to promote more students. The Standards seem ambiguous on this point. In the Standards, a single test score is presumed invalid, and multiple measures are presumed more valid. At the same time, multiple measures are only more valid to the extent that they are correlated with adequate skills, a fact, which to my knowledge, has not been demonstrated. A watered down system would not be as effective at improving teaching and learning, the primary purpose of accountability systems. Quite some time ago, a South Carolina legislator explained to me that minimum competency tests (the anti-social promotion tool of that day) were a "tightrope" for low-achieving minority students that created the risk of increased failure and stigma but avoided the risk of inferior education and "being ignored" by the system. The tightrope image seems a good one because it is possible to fall off in either direction.

Such gaps in our knowledge—about the effects of further targeting and the validity of multiple measures—are a good transition to the next topic—continuous improvement and organizational learning.

Continuous Improvement and Organizational Learning

Chapter 4 of the report makes the following recommendation regarding teacher training for Summer Bridge:

> An important policy question is whether such activities could be further encouraged, both in the Summer Bridge program and in summer programs in general. Summer Bridge teachers seem to have been highly sensitive to the messages they received in training about adapting the curriculum. For example, in interviews, teachers reported spending more time on reading than mathematics, a strategy that had been recommended in training sessions. Summer programs can send the message to teachers that meeting individual student needs is as important as covering the required content, and could provide teachers extra supports and training in this area.

This is an example of the transition from evaluation to continuous improvement by which the district, schools, and teachers could function jointly as a learning organization. If, as the Standards say, "The primary purpose of educational accountability systems is to improve instruction and student learning," educational improvement is part of accountability. Beginning with a finding (like meeting the needs of individual students) and building a program of support and training would create a learning loop. This is similar to what is described in an Annenberg report as an "inquiry cycle" with six key stages, all of them necessary and iterative but occurring in no defined order in effective organizations: establish desired outcomes, define the questions, collect and organize data, make meaning of the data, take action, and assess and evaluate actions.[3]

Getting beyond accountability in the narrow sense is not easy. In many ways, the use of data for school improvement requires a transition from functioning as a bureaucratic organization to functioning as a "learning organization." Scribner, Cockrell, Cockrell, and Valentine make this comment: "Organizational learning…has been posited as a process that can lead to second-order change, that is, change that is the result of the critical evaluation of underlying values and assumptions that guide behavior."[4] Resnick and Glennan describe the task as creating "nested learning communities" involving six principles: a commitment to an effort-based concept of intelligence and education; a focus on classroom instruction throughout the district; a culture emphasizing learning and two-way accountability—the core elements of nested learning communities—throughout the system; continuing professional development for all staff that is based in schools and linked to the instructional program; and coherence in standards, curriculum, assessment, and professional development.[5] (These are the guiding principles of the Institute for Learning, an organization that collaborates with a number of urban districts).

I find it helpful to distinguish the distinct roles of districts and schools in this process. Districts can provide incentives, leadership, organization, training, and targeted support. Schools provide instruction under the leadership of their principals and staff.[6] Functioning as a learning organization involves close coordination and continuous improvement of the two roles. As described in the report, the Summer Bridge program already has many of the elements of a nested learning community on a programmatic rather than systemwide basis—an opportunity for students to learn through extra effort; a program built around classroom instruction (the ITBS curriculum and materials); continuing professional development; and coherence in standards, assessment, and professional development. A useful next step toward second-order change would be allocating more strategic resources to the vision that all children can reach proficiency and evaluating the impact of these resources on the chosen goal.

Conclusion

The three perspectives of accountability, adequacy in school finance, and continuous improvement have a common emphasis on improving student achievement. Accountability can be thought of narrowly as creating incentives and observing outcomes, as in ending social promotion and seeing if scores improve. Improvements from incentives alone are rarely sufficient to reach the goal, however, which opens the door to the broader idea of accountability as information about how to improve. To its credit, this report identifies what works, how much, and what else might be done to reach the goal of proficiency for all students.

Endnotes

[1] Policy Brief 5 of the National Center for Research on Evaluation, Standards, and Student Testing (Winter 2002).

[2] W.H. Clune, ed., "Equity and adequacy in education: Issues for policy and finance" [special issue], *Educational Policy* 8 no. 4 (1994): 365-375. See also W.H. Clune, review of *Equity and Adequacy in Education Finance, Issues and Perspectives,* edited by H. Ladd, R. Chalk, and J.S. Hansen, *Teachers College Record* 103, no. 1 (2000): 55-75.

[3] L. Keeney, *Using Data for School Improvement: Report on the Second Practitioners' Conference for Annenberg Challenge Sites, Houston, May 1998* (Providence, RI: Annenberg Institute for School Reform at Brown University, 1998).

[4] J.P. Scribner, K.S. Cockrell, D.H. Cockrell, and J.W. Valentine, "Creating professional communities in schools through organizational learning: An evaluation of a school improvement process," *Educational Administration Quarterly* 35, no. 1 (1999): 130-160.

[5] L.B. Resnick and T.K. Glennan, "Leadership for learning: A theory of action for urban school districts" (unpublished paper, August 2001).

[6] The role of an intermediate level of organization, a network of schools, is described in W.H. Clune, S. Mason, C. Pohs, C. Thiel, and P.A. White, "The Milwaukee middle school proficiencies: Systemic school reform through high stakes assessments and a network of schools" (paper prepared for the annual meeting of the American Educational Researchers Association, New Orleans, LA, April 2002).

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This report reflects the interpretations of its authors. Although the Consortium's Steering Committee provided technical advice and reviewed an earlier version of this report, no formal endorsement by these individuals, their organizations, or the full Consortium should be assumed.

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The Consortium on Chicago School Research is an independent federation of Chicago area organizations that conducts research on ways to improve Chicago's public schools and assess the progress of school improvement and reform. Formed in 1990, it is a multipartisan organization that includes faculty from area universities, leadership from the Chicago Public Schools, the Chicago Teachers Union, education advocacy groups, the Illinois State Board of Education, and the North Central Regional Educational Laboratory, as well as other key civic and professional leaders.

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